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ABSTRACT

This publication of the New York State Education Department addresses three applications of video in New York schools. Chapter 1 discusses public, cable, and commercial television broadcast resources, resources in the form of videotape libraries and collections, and resource utilization. The second chapter focuses on the process and product of video production, while the concept, context, content, and capacities of distance learning are covered in Chapter 3. Five appendices provide lists of: (1) independent public and private television producers and distributors; (2) guidelines for off-air recording of television programs; (3) New York State BOCES (Board of Cooperative Educational Services) Educational Communications Directors; (4) distance learning projects funded by the Technologies Network Ties program, fall 1986; and (5) proposed or operable distance learning projects. A glossary is also provided. (MES)

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The State Education Department
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Albany, New York 12230

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PREFACE

Many important resources contribute to the goals of excellence, equity and efficiency for all of our State's educational and cultural institutions. Recently, video and its host of interrelated applications has moved to the top of the list of resources serving as prime vehicles for attaining the highest standards of quality and enhanced opportunity. The arrival of the Information Age has spawned revolutionary technological developments never before available. With this new age, video's potential has been realized as an interactive as well as instructional tool at all levels of lifelong learning.

In 1959, the first educational TV station in New York State was established in Buffalo. With this station's inception began the State's ever-growing involvement in the use of television in an instructive capacity. Since that time, the applications of television for instructional purposes have grown considerably. The wide applications of the videocassette recorder and video camera have enabled educators to choose from independently produced materials as well as from the vast menu of public and commercial television instructional and informational programming. Educators along with their students are also able to produce television programs of their own which build upon basic life skills and relate to the specific curriculum area being studied.

As the times and the needs of our public institutions change, the visual technologies have responded accordingly. Satellite and cable networks, video discs, microwave transmissions and multiple new technologies have brought an explosion in the field of telecommunications, transforming both its meaning and its potential. The need to harness this potential for educational purposes becomes apparent as we consider the implications of these new developments. Prominent among these developments is the concept known as distance learning — the transmission of instruction from a point distant from the location of the learner(s) by an interactive audio and/or visual component.

With this expansion in mind, how do we best address our focal concerns for excellence, equity and efficiency in the schools and cultural institutions of New York State? The interactive technologies — specifically, distance learning — provide, if not an answer, then a path along which we may travel to respond to these concerns. Distance learning is becoming an important resource for strengthening educational programs and services in our quest for excellence. It offers a great potential for those people previously "locked out" of education due to prior inabilities to deliver such opportunities. Its very nature enables enhanced learning opportunities for adults, elementary, secondary, and post-secondary student, and the homebound disabled. Distance Learning also provides a means for addressing the staff development needs of the educational profession.

Although the purpose of this publication is to inform, additionally it is meant to broaden your perspective, and to move you to action. We speak of excellence in our schools and in our society with an "if only we could" mindset. The message here is very clear: we can. The interactive technologies, with video in a central role, offer a host of educational and instructional opportunities for an audience of learners in and beyond the traditional classroom walls.

This publication addresses three applications of video in our schools today: 1. Instructional Television, the most traditional of the three, yet ripe with innovative realities and possibilities; 2. Video Production, wherein teachers teach and students learn via the process of producing a television program; and 3. Distance Learning, an innovative development in education which potentially expands educational access to unlimited numbers. It is our intention that this document will help to increase the likelihood that intelligent decisions will be made as we strive to improve our educational institutions and expand access to them.

The Age of Information has arrived. With it has come broad demands for a more valid and efficient delivery system which will accommodate today's contemporary needs. This publication indicates how Telecommunications, with the visual technologies in a central role, offers a vitality and a potential not formerly associated with the static television viewing of the past.

GREGORY M. BENSON, JR.
Director, Center for Learning Technologies

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INTRODUCTION

A MEDIA SOCIETY

Communication: The exchange of thoughts, messages and information has come a long way. Man's ability and need to communicate have grown exponentially since the dawn of history. The context within which we communicate today is unrecognizable to preceding generations, to say nothing of those who were the first to try to interact with each other.

In tracing the development of technology with relation to education, Ernest Boyer, in his book High School, spoke of the time when the exchange of communication, however primitive, was once possible only in the present. Face-to-face exchanges were the vehicle for expression and memory was the only means by which ideas and thoughts could be preserved. As time and the needs of our earliest ancestors evolved, messages of information and expression of thoughts and ideas began to be passed on to others on the walls of caves or scratched on the surface of stones or parchment. What today might be considered as primitive art was, in fact, man's first innovative attempt to pass on his feelings and ideas to someone else at a later time in a different place. A visual, widely understood symbol system was invented and meanings, for the first time, could be experienced vicariously.

It took hundreds of thousands of years to progress from oral communication to writing. Towards the end of that timeframe, a man by the name of Gutenberg changed the nature of communication forever with the invention of movable type, which gave birth to the age of mass communication. For the first time, multiple copies of written words were capable of being transmitted to other places and to succeeding generations. It became possible for a citizen of one country to read what a citizen of another country had written 100 years earlier without traveling a step to do it.

We progressed yet another step when Samuel Morse invented the telegraph in 1844. This innovation in communication permitted signals to be magnetically transmitted over great distances at great speed. For the first time in history, the sending of messages was no longer constrained by the speed of man.

One hundred short years later, we experience the arrival of what Don Kaplan, in Video in the Classroom, calls the "Great American Dream Machine." Suddenly, we are confronted in our living rooms with a visual talking box which entertains, makes us smile, even persuades us to buy things we ordinarily might not consider. Television has come to replace the radio and the back porch as a tool for gathering the family together. As Americans settle in for an evening of television, the structure of their lives is transformed well beyond what anyone would have ever imagined. We now devote more hours per year to television than to any other single artifact.

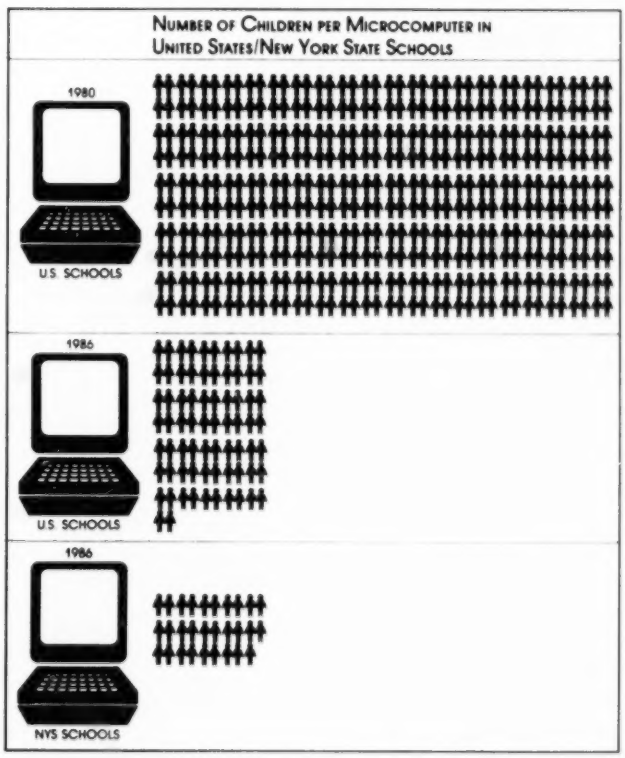
Beyond that, television's pervasiveness has brought implications that we have only now begun to understand and to appreciate. As Heinrich, Molenda and Russell point out in Instructional Media, we live in a time where worldwide communication of information is commonplace and instantaneous. Emerson's "shot heard round the world" literally took months before it was "heard" throughout the American colonies, and years before it was "heard" throughout the world. Had our modern communications technology and mass media been available in 1775, the whole world would have heard the shots and witnessed the scene at the Concord Bridge via communications satellite. Instantaneously, television would have reported indepth coverage of the incident in great detail. Had we chosen to tune in, we would have been bombarded with background information about relations between Britain and her American colonies, interviews with eyewitnesses to the battle, and statements by politicians concerned with the national and international implications.

What becomes clear from all of this is that television, as well as other modern communications technologies, has vastly increased our exposure to information and experience. It has become a great communicator, a teacher of sorts, whether or not we like what it teaches—and a powerful teacher at that! As television network executive Herb Schlosser points out, "There must be millions of people who have learned, simply

by watching crime dramas in the past few years, that they have the right to remain silent while arrested." There is little question that television gets the job done. The question is: What is the job we are asking it to do?

As with many great innovations of the past, television has been subjected to its share of criticism and denouncement. Just as Gutenberg's device would spread dangerous ideas among the God-fearing obedient masses, so too, television would tend to destroy conversation, negatively amend our reading habits, and debase the English language. Our purpose is not to support or deny any of these charges or beliefs. Rather, it is to acknowledge television's power and potential influence and to suggest that perhaps its real contribution to society is on the horizon, in the process of unfolding. The best is, without doubt, yet to come.

We continue to read and to be continuously told that we live in the Information Age. The evolving technologies are, in fact, changing our lives. Since the early 1980's we have moved from a country with one computer for approximately every 400 school children to 1986 and one computer for every 72 school children across the country. In New York State, that figure is one computer for every 29 children. There are approximately 15 to 20 million video cassette recorders in our homes here in America. This is in addition to the two and one-half billion people in 162 countries who own television sets — potentially the largest educational system in the world. We have already entered the era of the laser disc and CD ROM which give us vast amounts of information storage and access, and the emergence of fiber optics networks, which combines data, voice and graphic information delivery on a high speed, light driven "road."



The result of all this developing technology is a glut of information at our disposal, which reaches us primarily through video screens and monitors. Schools, and eventually learners, have to effectively evaluate the quality of this data to avoid redundant or needless information. Television's role in the Information Age will be a vital one, and if applied responsibly, can be a significant part of the process to bring excellence, equity and efficiency into our State's educational and cultural institutions.

VIDEO AND THE SCHOOLS

Video technology has grown immensely through the years. It has gone from a blurry black and white image to color-crisp visuals in stereo sound capable of interaction. In terms of television's educational application, the verdict is still out. Once termed an "indispensable tool" by American educator Charles Siepman, instructional television has not always lived up to its potential. Yet we find, as the video society continues to emerge, innovative and effective educational possibilities emerging, as well.

It has always been "a rough and rocky road" for the protagonists of educational television. From its inception, criticisms from the left and right, warranted and unwarranted, were the lot of those who would be its supporters. Fears of replacing the teacher with a cold, monological, "talking head" were enough to doom educational television (ETV) from the start. The problems of cost and scheduling all but assured an early grave (if it were to be born at all) to this "struggling infant."

When did educational television take its first breath? It might be traced back to World War II when puppet shows and other short programs for children were first broadcast. In 1958, when the National Education Television (NET) replaced the Educational Radio and Television Center, educational television for children first experienced a sense of self. Instruction was broadcast from 44 educational television stations around the country. This kind of master teaching was perceived as a threat to the classroom teacher and was seen as a failure in its first decade. This was largely due to its poor production quality and an ensuing credibility problem caused by its competition with commercial television.

The other initial approach at the time was closed-circuit instruction with a one-way "tele-lesson" taught by a teacher at one location to other classrooms in

close proximity to the origin of instruction. Although deemed innovative and in step with the advancing technology of the time, it lagged far behind the production values of commercial television and never reached the standards it needed to achieve in order to survive. This system is now rarely used in schools.

In one curious experiment in the 1960's, known as the Midwest Airborne Television Project, a four engined aircraft continually circled over a six state area while transmitting televised lessons into the classrooms below. Those involved indicated that it did not make a decisive impact on the schools.

Educational television's less-than-inspiring debut was soon replaced by an evolving philosophy that created a new pedagogy and gave purpose to its existence. In their book Children and the Faces of Television, Palmer and Dorr explain that the early 1960's saw a general upgrading of production quality in educational television thanks, in large part, to the Ford Foundation which supported the development of video productions and the distribution of hardware. A significant turning point came in 1967 when the Carnegie Commission's report recommended and succeeded in establishing a Corporation for Public Broadcasting (CPB). CPB has had an unquestioned impact on children's television as the impetus for transforming educational television from an instructional mode to an educational one, where it not only taught but expanded one's horizons and imagination as well.

1968 saw the formation of the Children's Television Workshop(CTW), and the face of educational television was changed forever. Sesame Street succeeded in elevating children's educational programming to a level never before imagined and, in so doing, set a standard for the industry not since replicated. It was the result of a unique blend of technical and creative expertise with scientific and teaching integrity, succeeding not only in teaching but in entertaining. The momentum continued as CTW's Electric Company came center stage. It differed somewhat from Sesame Street, in that it was perceived as more instructional in nature and more "educationally relevant" than Sesame Street. It employed the latest technologies of special effects that included computer animation techniques. All this "glitz and glitter" contrasted sharply with the easy-going, laid-back Mister Rogers, whose warmth and personal approach endeared him to children all over America. These three programs proved that quality educational programs for learners were not only possible, but desirable.

What programming exists today from which educators may draw? Despite the fact that there exists a vast library of broadcast and video instructional programming, the demand far exceeds currently available programming. This is because the diverse needs of educators encompass every curriculum area, every grade level, every classroom and every home-based learning situation.

The programming that is available covers a wide range of curriculum areas, from programs on teaching and professional development to instructionally specific programs. Video libraries are found in the public libraries and in the libraries of the Board of Cooperative Educational Services (BOCES) in New York State, as well as within libraries developed at the local building level. Both the public and commercial networks are a rich source of instructional programming, as are many cable channels, including 24 hour news, weather and stock reports. The list goes on, but the point to be made is evident: instructional television programming to supplement the efforts of the classroom teacher does exist. Knowing where to turn is the key.

We began this section with a discussion of television's potential and with the question of whether or not its existence has made a difference educationally. It is clear from recent television history that instructional television programming is "alive and well." More teachers are using instructional television today as a supplement to their teaching efforts than ever before; part of this increase is due to the fact that programming is now more widely available. But it is also a fact that the quality and relevance of today's instructional programming, with enhanced computer graphics and other techno-effects, has proved to be a viable teaching tool that serves both teacher and student.

So the question becomes: How can the developing technologies help make television's contribution to learning more effective? Answers lie in some of the recent applications of television that have been taking shape in the last few years, applications which give every indication that they will be continuing for some time to come. The video boom has been impacting society recently and has impacted our schools as well — and positively so!

What is beginning to happen in the schools today is somewhat reflective of what is happening throughout society — in courtrooms and board rooms, ballparks and hospitals, weddings and wills. Video is everywhere. Nearly all American households have a television set and 30% of those have a videocassette recorder. The cassette recorder has permitted us many luxuries, not the least of which is the power to determine what we want to watch and when we want to watch it. We can watch Beverly Hills Cop in our living room and the CBS Evening News with Dan Rather at breakfast the following morning.

If commercially produced programs are boring, technology now provides the tools with which to make our own videos. A whole industry of video cameras

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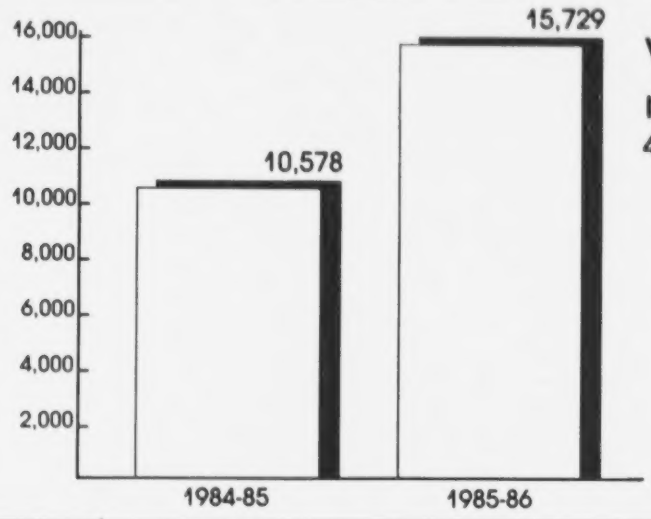


VIDEO CASSETTE RECORDERS IN NEW YORK STATE SCHOOLS
43% increase

now floods the market, the latest of which — a camcorder — is a miniaturized, lightweight camera that makes producing home movies almost as easy as shooting snapshots. Birthdays, Christmas greetings, Bar Mitzvahs — all these and more are fair game for the videophile who wants it all recorded for posterity, in living color.

There is an enormous application of video in business and industry. Examples abound of how computer and video technology have been adapted for interactive training programs. The Ford Motor Company keeps its 40,000 mechanics updated; St. Joseph's Hospital in Houston prepares its interns; and behavior modification experts harness the growing technology in the service of mental health. The instant replay is no longer limited to the ball field.

Beyond its training applications, video is also evident in the marketplace, where it has emerged as the delivery system of choice for today's sales messages. Homes for sale, previously limited to photographs and endless visits to sites, are now readily accessible on videotape. The apparel industry has fashion videos for those too busy to make it to the stores for a first-hand visit. And for the booming singles market, those too busy or too shy for other kinds of spontaneous encounters now have the services of dating companies which provide a range of information from complexion to careers for potential partners.

The advent of video has not been neglected within the educational community. Increasingly across the country, schools and other learning institutions are using the new technology more effectively. The video revolution certainly has contributed to the increased availability of the quality programming just considered. Additionally, teachers and students have joined together in producing their own video productions as a vehicle for teaching content, basic and higher order thinking skills, and self expression.

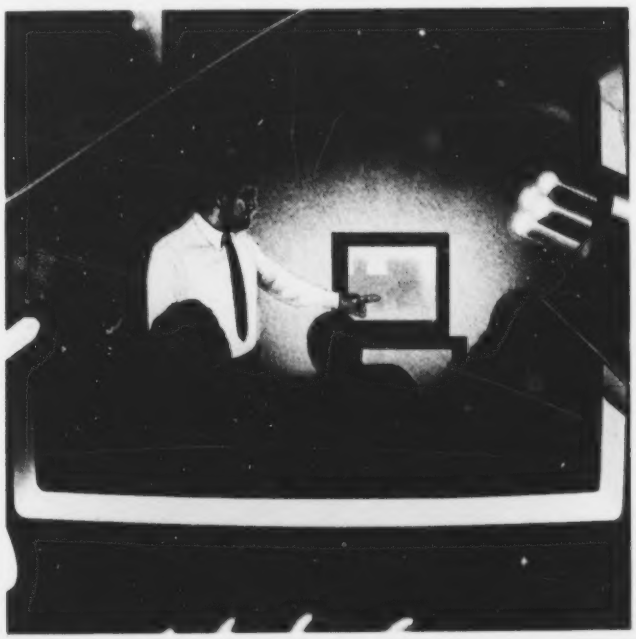
Perhaps the most innovative efforts have been spurred by the development and convergence of a number of new communications technologies, including cable, personal computers, microwave systems and satellite communications. These efforts, which will be more thoroughly discussed in the chapter dealing with distance learning, utilize television as an interactive as well as an instructional tool. Learners are receiving oral and visual instruction via a television monitor. Through the use of either a dedicated phone line or a capacity inherent within the system itself, they are able to talk to, and to question the instructor on the other end of the line.

These innovative uses of television have many implications for society as a whole. Suddenly, we find ourselves on the verge of being able to provide access to learning opportunities to a broader range of the population. The day is literally at hand where anyone who wants to learn will be able to do so. Any place where there is a television there will potentially be a learner at the other end receiving instruction. Not only will the learner seeking his or her diploma or degree be found using state-of-the-art technology, but the lifelong learner as well, being updated on professional skills or learning new ones for a job or career change, or simply rediscovering the pure joy of learning about a subject of interest.

We are becoming a society that needs to know. And a society that needs to know needs to be taught. It is, perhaps, in this context, as a delivery mechanism for extending learning opportunities to more people, that video will become the humanizing force that many of us have always hoped television would be.

CHAPTER ONE

INSTRUCTIONAL TELEVISION: THE RESOURCE OF FIRST RESORT



The use of a visual medium for instructional purposes has been available for a long time. Some may recall the days of lantern slides and captioned filmstrips where the class sat around and observed blown-up photographs projected on the classroom wall while the teacher called upon members of the class to recite. The introduction of the sound filmstrip reduced interest in watching static pictures. Thirty-five and sixteen millimeter films brought an entirely new dimension to the teaching process, as animated accounts brought to life a wide variety of subjects. These films were produced, acquired and distributed to countless schools and teachers through the years. Their contribution to the learning experience of many of our students cannot be minimized.

We have already seen how instructional television programs have been a part of our educational agenda since the late 1950's. Many of us have been exposed to these programs either as students or teachers, or both. To varying degrees, we are familiar with what instructional television has been. What we may be less familiar with is what ITV presently is. It is now something infinitely more complete and versatile than it was only a few short years ago.

The number of American schools using video materials for instruction has more than doubled since the early 1980's. According to the Education Research Center, the growth rate for the use of instructional video in the nation's 81,000 schools is higher than that of microcomputer usage. In New York State alone, during the 1985-86 school year almost 40% of the schools used broadcast television instructionally and 75% used videotape for instructional purposes, as well.

As television has become an integral part of our daily information network, educators are rediscovering the value of using this familiar and versatile medium for reaching students. Coupled with this awareness has come a dramatic drop in the price of videocassettes and videocassette recorders (VCR). These two significant factors have had an impact on a marketplace which is intent on capitalizing on this growing phenomenon and making a greater number of higher quality instructional videotapes available as well. The instructional programming of the 80's is designed by educators, produced by television experts, and field tested in classrooms. New techniques in program format and approaches to instruction contribute to what is becoming a new age in instructional video. These techniques include support materials, such as teacher guides and computer software, and effective integration with the existing curriculum.

Let us take a look at some of the resources available to the educator for instructional purposes.

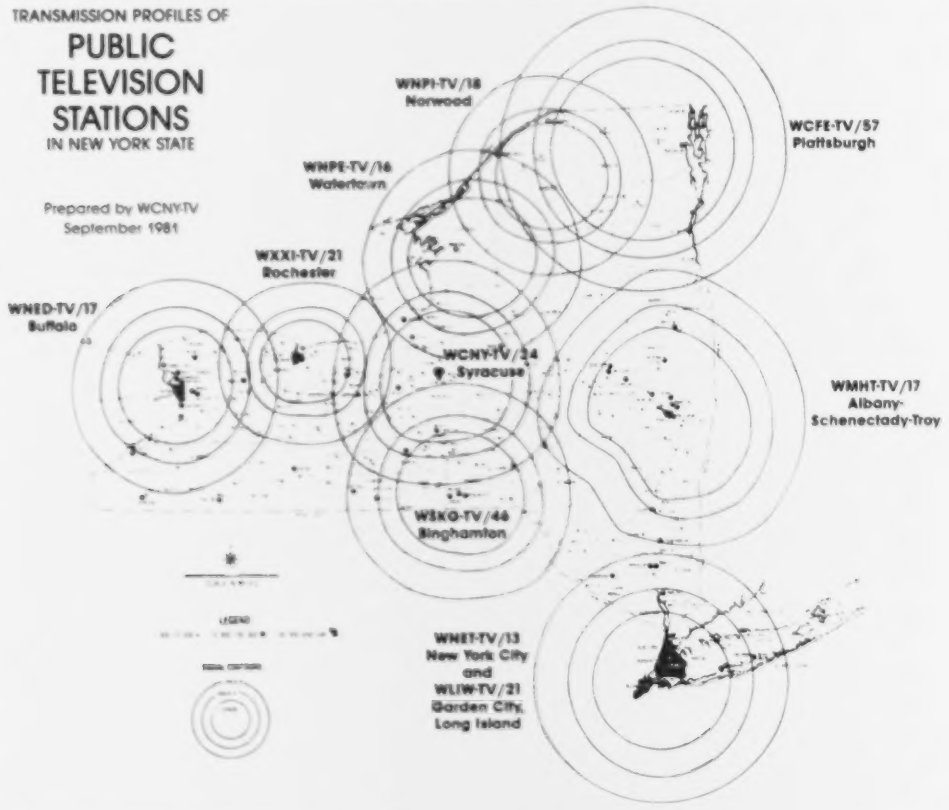
Broadcast Resources

PUBLIC TELEVISION

Public television (PTV), is the most well known of the instructional programming resources in existence today. 11 of approximately 300 public noncommercial stations in the United States, are located in New York State. Of these eleven, nine are interconnected and can broadcast simultaneously; the other two — WNYE-TV Channel 25 and WNYC-TV Channel 31 of New York City,- though not part of the state system, do provide instructional programming.

The first of the New York stations to be established — WNED-TV Channel 17 — was initiated in Buffalo by the Western New York Educational Television (ETV) Association, Inc. in 1959. The most recent addition — Plattsburgh's WCFE-TV Channel 57 — was added in 1977. All of these stations are community owned and are chartered by the Board of Regents of the University of the State of New York.

In educational broadcasting, the State Education Department is the Regents' administrative arm. The Department is responsible for chartering of public television stations. These are established through local community educational television councils or associations. Funded in part by the Education Department, these



councils are independently governed by a local community board of directors or trustees and function independently.

The New York Network, under the State University of New York (SUNY), distributes programming which provides program interconnections between the State and the community public television stations. A microwave system is leased from the New York Telephone Company and broadcasts from the New York Operations Center in Albany. This center also provides television production facilities for SUNY and other New York State agencies.

This three-part division consisting of the State Education Department, the New York Network, and the local community public television stations has, to this day, been successfully employed in the continued development of public telecommunications services in New York State. With this brief historical perspective, let us take a look at the plethora of instructional television resources available to the educator from New York's public broadcasting stations.

The state's public television stations generally provide instructional programming and general audience programming. The instructional programs are designed to support specific learning objectives in a course or unit of study. General audience programs provide public affairs and general educational, cultural and informational programs as part of a general community service. This publication will consider daytime programming geared, more specifically, for instructional support purposes, recognizing full well the enormous contribution which the general audience programming offers, as well.

What is meant by instructional television or ITV? ITV refers to instructional television programming broadcast to schools and homes during the school hours by the local public television affiliate. It uniquely provides teachers and learners with additional exposure to a wide range of topics and subjects. In New York State alone, the local affiliates presently broadcast approximately 200 ITV series.

The programs in these series extend over a wide range of curriculum areas. Any number of these programs may be instrumental in helping one youngster to read, or another to receive reinforcement in math or science skills, or yet another to understand and become more involved in the world around him. The programming covers courses in every area of the curriculum at both the elementary and secondary levels.

Where do these programs originate? Some are produced by local stations, but the majority are acquired by the stations from public and private producers. These organizations develop, acquire and distribute a wide variety of television and related printed material, including computer software (See Appendix A for a listing of some of the major producers and distributors of instructional programming).

Each station has a school services committee made up of school personnel from the schools in the viewing area and the station's ITV director. Classroom teachers are invited to play a specific role in the selection of programs for a local station's broadcast schedule. The process begins with Firstview, a yearly, national screening of approximately 100 new series. The ITV directors attend this meeting and discuss their findings with the school services committee.

Following Firstview, a preview week is held by each station, generally during the Thanksgiving week, in which classroom teachers participate. Survey forms are distributed to teachers who are invited to evaluate the new programs and vote for those they would like to see broadcast by their local PBS affiliate. It is significant to note that it is the teacher — the professional who uses these instructional programs within his or her own classroom — who is critical in determining which programs are ultimately broadcast and which are not.

What series are teachers and the local PTV stations selecting for broadcast? The series which are provided by the State's public television stations are extensive. Each local PTV station publishes and distributes its own schedule of yearly programming. Programs in general areas, such as multicultural studies, consumer education and the arts, as well as subject-specific programs, are available from many of the local stations. Let's take a look at a few of the typical instructional programs which are broadcast by our State's public broadcasting stations.

MATH WORKS: The goal of this series is to provide a general understanding of mathematical ideas and to enhance the application of this understanding in solving problems systematically. The 28 programs in this series, each of which is fifteen minutes long, illustrate how math skills are used to solve real life problems. These programs are intended for 5th grade students.

TELETALES: This is a series of 15, fifteen-minute programs that introduce children to a selection of familiar, as well as less-well known, folk and fairy tales. These programs address the needs of the K-3 range and draw on the oral legacy of our world's cultures. Viewers become aware of the universality of human emotions, and have their imaginations kindled, as well.

ACROSS CULTURES: This multicultural series introduces middle school students to children their own ages who live in three distant areas of the world. Each program deals with day-to-day situations familiar to children, such as family life, education, sports and play. These 13, fifteen-minute

programs, also explore the concepts of "dependence," "independence," and "interdependence" as people in families and groups deal with each other and their environment.

NEWSCAST FROM THE PAST: In this series, high school students are provided with a view of the world within a specific period of time. The programs examine events that happened in many parts of the world at roughly the same time period, in a contemporary television news format. Included in these 15-minute programs are commercials selling commodities of the period and news coverage of historic wars, scientific achievements, philosophical beliefs and much more.

In addition to such nationally produced programs, some of the State's affiliates are producing programs of their own. The longest running ITV program in the country is Assignment: The World, which is produced by WXXI Channel 21 in Rochester. Entering its 27th year this fall, this news and current events series is designed to give an up-to-date picture of the world, including national and regional happenings. Its "Clues in the News" segment lends an interactive element to this 15-minute production which broadcasts live for 32 weeks of the year. WXXI is also busy producing 15 fifteen-minute programs entitled Fins, Feathers and Fur, which will assist teachers in developing the writing skills of second grade students. These programs emphasize the process approach to writing and, through the use of video vignettes, focus on things that encourage children to write. Ask any second grade teacher how welcome an addition this might be for them!

Other productions by local PTV stations include HELP WANTED, a career education program distributed nationally by WNPE in Watertown; OLD ENOUGH TO CARE, produced by WCNY in Syracuse, which deals with the problems of growing old; and READING RAINBOW, out of WNED in Buffalo, which encourages children to WANT to read during the summer months, and continue doing so throughout the year.

Comprehensive teacher guides for all of the programs in a broadcast series are available from each community PTV station. These guides provide teachers with information about the educational objectives for each ITV lesson, a summary of the lesson, and preparatory as well as follow-up activities and questions. Most of the stations offer individualized workshops and consultations for teachers, administrators and parents. These informational workshops give advice as to how one can effectively implement an instructional television series into an existing curriculum or course outline. Consult your local PBS station for more specific information regarding this service.

Each station sets aside all or a portion of its daytime schedules to broadcast these instructional television programs. Additionally, two PTV stations — WNED

A Sample Daytime Broadcast Schedule of WCNY-TV, Liverpool, NY

Channel 17 in Buffalo and WMHT Channel 17 in Schenectady — participate in the Video Library Project. This project extends and expands the basic educational services of these two participating stations. Entering its fourth year in Buffalo and its second year in Schenectady, entire series are broadcast (block-fed) during their early morning hours when regular public programming schedules have finished for the evening. This allows schools to videotape the programs directly off the air and create their own video libraries for classroom use. Teachers are able to accommodate their schedules and curriculum plans and not depend on the fixed broadcast schedule of a local station.

To help facilitate the participation of more schools in this project, some local stations coordinate individual and group purchasing for videocassette recorders. The growing availability of these low cost, programmable VCR's enable educators to have greater access to an increased amount of instructional television programming. The taping of these block-fed programs are permitted by off-air taping rights, but only if these rights are purchased by the stations for the participating schools. Other stations not participating in the Video Library Project block feed a limited number of series throughout the school year.

What about programs broadcast during the day? Can they also be videotaped for use at a time more convenient for the classroom teacher? Appendix B includes the specific guidelines for off-air recording of broadcast programming for instructional purposes. Generally, a broadcast program may be recorded off-air and used by a classroom teacher for a period not to exceed ten days. During these ten days, a teacher may use the program once more for purposes of reinforcement. After 45 days, the program must be erased. This gives classroom teachers extra time to incorporate these programs into their schedule and/or lend these programs to individual students who might wish to individually view a program before or after school or at home.

Recently, the PTV and the State Education Department have jointly acquired a number of high quality video materials on the secondary level for broadcast by the contracting stations. For example, high school biology teachers now have access to six 10-minute programs on homeostasis. Through the use of animation and computer generated graphics, the series entitled Homeostasis succeeds in graphically illustrating this ongoing process in a way that can truly complement a teacher's best efforts. The previously-mentioned series Math Works is composed of twenty-eight 15-minute programs in problem solving and mathematics for fifth grade. The programs feature fifth graders thinking about, talking about and solving mathematical problems that relate to their lives. Some of the programs also include documentary style illustrations of people who use mathematics as a normal part of their professions. Clearly, we have taken a giant step from the kind of instructional television which many of us were exposed to just a few short years ago.

As more and more quality instructional programming becomes available on the marketplace, it is becoming increasingly clear to distributers and users of these programs that a more efficient and centralized acquisition process needs to be established. To that end, the New York State Education Department has created a consortia of organizations and has begun to explore alternative models for statewide acquisition and duplication rights of film/video packages. Currently, user organizations separately acquire their own films and videos resulting in redundant inventories and a less than equitable distribution of resources along with a higher per unit cost. One of the objectives of this consortium, including representatives from BOCES, SUNY, PTV stations and libraries, will result in the acquisition and equitable distribution of more high quality, curriculum-focused media. Concurrently, the Board of Regents has proposed legislation to provide an appropriation for such statewide purchasing of instructional video resources.

There are other efforts by public television which promote learning opportunities for people beyond the traditional walls of the classroom. In conjunction with local stations and various colleges and universities across the nation, the Adult Learning Service makes college-level instruction via television (telecourses) available to adult learners across the country. This service provides college-level television courses and support services constructed by teachers and instructional designers for the adult student seeking a college-level degree. Again, it is necessary for you to consult with the local stations to determine which of them are participating in this particular service.

Public Television also offers services in response to the increasing demands for educational and training opportunities for the adult learner in businesses, industries and professions throughout the country. In cooperation with the local public television affiliates, PBS offers continuing education, career training and professional development courses, as well as college credit telecourses to the adult learner.

The PTV stations participate in many community outreach projects which have had a great impact on many communities. These projects range from programs related to adult literacy and equivalency diplomas to programs relating to chemical dependency and substance abuse.

CABLE TELEVISION

An additional, although less comprehensive, source of educational broadcast programming is cable tele-

vision. Although cable's potential is still in its infancy, as early as the beginning of the 1950's, Cerrache Cablevision in Ithaca, New York, which was the first cable service in New York State, was also one of the first cable companies to broadcast live studio productions. This burgeoning potential extends beyond broadcasting, or cablecasting, into, as yet, largely untapped functions such as instructional delivery (see Chapter 4 — Distance Learning), and community-based informational programming (public access). It can also serve as a rich source of programming easily integrated into the curriculum. The purpose of this section is to consider cable as a potential resource for the educator seeking programming which will supplement his or her teaching efforts.

The New York cable companies provide subscribers with many programming services, the availability of which varies according to geographic area. The satellite programming industry, which directly affects the cable industry, is an extremely dynamic area; as a result, the total number of cable services change as new programs become available. A few channels offer regularly scheduled programs which are educational as well as entertaining.

NICKELODEON: This is the first channel devoted entirely to children's programming. It is available 14 hours a day, seven days a week. The programs are diverse. The backbone of the channel is a series called Pinwheel. It is a program for preschoolers that combines animated stories, puppets, skits, live action, mime, song and dance, and documentaries. The emphasis is on teaching social values, not cognitive skills. It is an ambitious series — running four hours a day — so the segments vary greatly from stimulating to boring. In many ways, it is reminiscent of Sesame Street in that it has a regular cast of characters. However, it has a slower pace, longer segments, concentration on children's books and many unique nonverbal segments for the hearing impaired. Programs within the series include two science-oriented shows — Mr. Wizard's World and What Will They Think of Next?- which demonstrate scientific principles using common household objects and Against All Odds, a show which presents biographies of people who struggle to become successful. There are a number of other worthwhile programs cablecast on this channel. Standby . . . Lights! Camera! Action!, hosted by Leonard Nimoy, takes viewers behind the scenes at the movies and is a must for teachers and students involved in video production (see Chapter Three — Video Production).

THE USA NETWORK: USA offers a variety of programs, a number of which are for children. Calliope is an hour-long compilation of quality short stories. They concentrate particularly on those stories about favorite book characters such as Curious George, Paddington Bear and The Mole. Scholastic Sports is a video sports clinic where popular sports figures provide tips and Pumpkin Creek is a 30-minute program for primary students that uses skits, animation, live action and music to tackle subjects that range from time to animals.

PAY CHANNELS: A number of the pay channels have increased the number of children's programs and G-rated movies. Fraggle Rock on HBO was created by Jim Henson, the father of the Muppets, and is filled with the humor and sensitivity that has come to be associated with his productions. The Fraggles live in a world behind the walls of an old house. The house is occupied by an old eccentric inventor and his dog, Sprocket, who can see the Fraggles though his master cannot. The Fraggles display all the traits, emotions, faults, and strengths of human beings, which allows the series to develop into a moral at the end of each episode. Faerie Tale Theater is aired on SHOWTIME and presents original, acclaimed dramatizations of fairy tales such as Jack and the Beanstalk. Many stars of note, such as Jean Stapleton and Robin Williams, have appeared in these classics. The DISNEY CHANNEL predictably offers quality Disney classics such as Alice in Wonderland as well as other made-for-cable movies.

There are a number of other channels offering programs which, although not specifically intended for the young viewer audience, have many instructive and educational qualities well worth mentioning. CABLE NETWORK NEWS (CNN) broadcasts a 24-hour program offering continuously updated news, sports and weather, as well as special interest features. This can be invaluable as a current events tool. C-SPAN covers federal governmental hearings, including live coverage of the United States House of Representatives, and NYSCAN broadcasts of the New York State Senate and Assembly committee hearings. Additionally, numerous public policy conferences are broadcast, which can be readily used as support for the study of government. The latest financial and business programs, including the NYSE and AMEX ticker reports, are continually available from the FINANCIAL NEWS NETWORK (FNN) and alpha-numeric news, featuring stock market and financial news, is available from the DOW JONES CABLE NEWS. Many of these programs can readily serve the needs of the history, political science, economics or social science teacher looking for authentic

instances of school subjects coming to life in the real world.

A science teacher doing a unit on the changing world climate, has at his/her disposal a 24-hour weather channel that provides coverage of national, regional and local weather conditions. The Spanish International Network (SIN) provides the Spanish teacher with a Spanish language series, as well as various specials and news coverage, to allow students the opportunity to experience authentic language interactions. The health and psychology teacher may wish to pursue LIFETIME, a channel devoted to health, relationship, self development, fitness and medical programming. A music teacher may wish to tap into Music Television (MTV) or the Cable Jazz Network to enhance the curriculum.

Finally, many cable systems serving local communities provide a channel or channels which can be accessed by the public. Commonly referred to as public access channels, they are vehicles for showcasing the talents and interests of local community residents. A number of teachers throughout the State are involved with their classes in video production (See Chapter Three) and have cablecast their productions over this channel, permitting other viewers, including students, to observe their innovative efforts.

The list of resources is a virtually endless one and the reader is encouraged to consult the local cable programming guides for a more complete list of the services available from cable television systems. The point to be made, however, is that a wide array of programming possibilities is available via cable. Cable's value, then, as an instructional and educational resource lies with the personal choices and motivations of the visually-oriented teacher. This diversity has many implications for educators. How creatively and innovatively these programs are utilized and linked with the curriculum becomes the opportunity and the challenge of the classroom teacher.

COMMERCIAL TELEVISION

Amidst several contending points of view lies a fundamental reality. Television is a prominent part of our lives. It is a source of information and entertainment without parallel in the world. It affects the way we live and the way we view the world. We may choose not to watch it, but our friends will, and our acquaintances will, and so will our children. Its influence on each of our lives is inestimable.

The mere mention of the term, commercial television, within a frank discussion of education is bound to conjure up all sorts of thoughts and emotions. It is, for many, as sensitive an issue as are politics and religion. For some, television has come to represent a vast wasteland where the sad reality of American culture and taste is exposed for all the world to see. To others, it is a legitimate and necessary form of escape from a western way of life that is demanding on the human body, mind and spirit. In between these divergent belief systems are varying degrees of acceptance and rejection.

It is for each of us to make up our own minds about the quality and standards of American television programming. We must also make up our own minds about the choices we make in our television viewing. Discriminate viewing reveals that the major networks are broadcasting programs and series which are important for concerned parents and educators to know about. Knowing that these programs exist, and how to access them, becomes the purpose of this section. We begin by referring the reader once again to Appendix B, which clearly explains the recording rights that educational institutions have regarding off-air viewing. As a result, it is technologically and legally possible for educators to have access to a greater number of programs because they are no longer limited to the daytime broadcast schedule. Prime time documentaries and relevant late night shows, previously beyond the educator's reach, need no longer elude the classroom teacher. These video-taped programs can be inserted into the teaching schedule when the teacher sees fit.

For the past nine years, the CBS television network has been involved in an educational project entitled the CBS Television Reading Program. This nationwide television script-reading project is designed to utilize children's enthusiasm for television to help improve their reading skills and increase their motivation for further reading, learning and creative activity.

Six times a year, CBS, through its affiliates, distributes scripts of television programs and accompanying extensive teacher's guides to interested teachers. Since 1977, CBS has sent out over twenty million scripts for some forty shows. "We do it because it's a good thing to do," explains Joanne Brokaw, vice-president of the Educational and Community Services Department at CBS, and a former teacher. "There is a real commitment at CBS to provide this service for students, their parents and teachers."

The reading program offers elementary and secondary school students scripts of specially selected presentations, such as Silence of the Heart, which dealt with teenage suicide, A Tale of Two Cities and Oliver Twist, adaptations of Charles Dickens' two classic novels, a Charlie Brown special and many others. By offering a broad spectrum of selections, it is hoped that the needs of a wide range of students will be reached.

With the programs come parent as well as teacher guides. The parent guide is a brief list of suggestions as

to how parents might share the viewing experience with their children. Participating teachers receive comprehensive guides which are used to initiate classroom discussions and to involve the students in a variety of reading projects.

CBS is involved in another project that encourages its viewers to read more. The goal of Read More About It is to encourage its viewers to turn to the world of books for additional enjoyment, information and knowledge. At the conclusion of selected broadcasts, well known performers from CBS programs alert the viewer to books which directly relate to the subject of a television program.

CBS programming also includes schoolbreak specials which are generally broadcast at the end of the school day and before the dinner hour. The programs tend to deal with issues which confront today's adolescents, including drunk driving, divorce, teenage pregnancy and the like. Study guides are available for these programs as well. For more information on these guides and on the time and date of these airings, consult local CBS affiliates.

ABC also has a series of afterschool specials that deal with a variety of provocative themes which address issues of concern to today's teenagers. The premise of these programs is that they will serve as a point of departure for classroom and family discussions. Themes addressed in the past have included first impressions, family pride and envy in Have You Ever Been Ashamed of Your Parents?; peer pressure and responsibility in But It's Not My Fault; and love, faith and parenting, in The Woman Who Willed a Miracle. All of these programs are accompanied by study guides which can be obtained from one's local ABC affiliate.

In addition to these programs, the ABC network broadcasts other programs of educational, cultural or informational significance. Many of these programs are part of a series entitled ABC Notebook, and are often directed at young people as well as adults. The Great American Teenager is a look at adolescent problems, attitudes and interests from World War II to the present. Divided into three parts, the program illustrates how new teenage trends alternate with repetition of old ones in comfortingly predictable ways. One Too Many is a program which dramatizes the tragedy of teenage drunk driving in the hope that younger and older viewers will confront this national problem that undermines and destroys so many young lives.

NBC also presents a number of programs that deal with educationally relevant issues. Perhaps the best example of this is the series NBC White Paper which presents an array of topics and issues of significant concern for those growing up in the 80's. The documentary entitled Divorce is Changing America examined how divorce has "drastically changed the way we live, think and grow up." Main Street is the first network news program to address the needs, wants and interests of young people. Sex and the American Teenager was an edition of Main Street that was devoted entirely to an examination of adolescent attitudes towards sex and the problems that teenagers have in dealing with their sexuality.

The Cultural Information Service administered by the three major networks prepares study guides for these and other network presentations that can be discussed with students. Local network affiliates are able to provide these at no cost. The Television Information Service (TIO) as well, offers various publications addressing specific public concerns regarding the effects of television on our society. Included in this resource are several publications geared, specifically, towards helping teachers and students better utilize television's educational value. To find out more about TIO write to: Television Information Office, 745 Fifth Avenue, New York, NY 10151.

How may we comment on the resources available to us from the three major commercial networks? The examples cited above are only a few of a large variety of programs broadcast seven days a week, 365 days a year. It becomes important to consider the nature of the commercial networks when considering how effective an educational function they provide. The ratings clearly communicate to the networks what the public wants to watch on television. As profit-making organizations must do, the networks are, in effect, giving us what we demand. The viewing public has determined, to a large extent, that television's business is show business.

The public has determined that it prefers to be entertained by commercial television, not taught by it; but television has a way of teaching, whether that be its intention or not. We are always in a learning mode, and viewing television is no exception. It becomes incumbent, then, upon the viewer looking for learning opportunities to be ever mindful of what is broadcast over the airways — and when.

To the educator who is looking for yet another visual resource from which to choose, commercial television offers a number of viewing possibilities. One may need to continuously follow the local listing and consult with the local television stations. Programs may not exist in the numbers we prefer, but when seen within the context of one resource among others, it is a legitimate option from which to choose.

Essentially, the networks give us what we want. As educators looking to the visual technologies as a supplement to our best teaching efforts, we must make the best of these and other resources, and help to create in students an awareness of intelligent, critical and discriminate television viewing.

Videotapes

In addition to the large number of broadcast and cablecast resources cited above, there are numerous resources in the form of videotape libraries and collections. As our society continues to become an increasingly visually oriented one, with video as the format of choice, institutions and individuals will have at their disposal an increasing supply of tapes for purchase, rental, and distribution. These videotapes are presently available from a variety of different sources in New York State, including, but not limited to, the Boards of Cooperative Educational Services (BOCES), the public libraries, the public broadcasting stations, the Center for Learning Technologies Media Distribution Network and locally developed school libraries and media centers.

BOCES

The distribution of visual materials to member school districts is one of many services provided by the regional BOCES centers. These visual materials may include 16 mm films, art prints, slides, filmstrips and transparencies, as well as videotapes. Through the years, these BOCES holdings have been of immense service to teachers who have chosen to use the visual technologies as an aid or supplement to their teaching lessons. We will describe the services of the BOCES in a generic sense, although each of the existing BOCES is an independent functioning unit that has an organization and distribution process designed specifically for its member school districts.

The film and media libraries maintained by BOCES contain a full range of K-12 programs relating to a wide variety of curricular areas. These programs, as well as additional programs related to staff development, adult education and career education, are described in catalogs which are distributed to all participating component schools of the regional BOCES. These catalogs provide a comprehensive listing of all instructional materials and are designed to give the classroom teacher greater assistance in the appropriate selection of visual instructional materials.

BOCES films and videos are generally available to all teachers in those schools which are members of the regional BOCES and have elected to participate in its film and video service. The participating schools pay a fee for this service based on their enrollments, and are entitled to a wide variety of services within the limits of the capacity of the BOCES collection. The service operates according to specific ordering and delivery schedules negotiated by the BOCES for the districts involved. (Consult Appendix C for a complete listing of the Boards of Cooperative Educational Services in New York State)

In the last few years, there has been a significant increase in the utilization of video recording and a slight decline in the utilization of the 16 mm film. In many instances, classic films that BOCES used to lease in the 16 mm format are now available in the VHS format. Many of the BOCES have retained the right to duplicate these titles for distribution to the local schools. Schools may retain these copies for varying durations, depending on arrangements made with the individual producers. As more and more teachers and schools continue to purchase VCR's, we are likely to witness a continuing trend toward video and away from 16 mm films. We have seen how schools as well as business, industry and home users have begun to turn to video and, as a result, BOCES film and video libraries have begun making their purchases around this emerging fact of life. Most educational institutions seem to be choosing from among three video formats — 1/2 inch VHS, 1/2 inch Beta and 3/4 inch U-matic. The BOCES libraries are increasingly opting for video over 16 mm films in their acquisition choices, with 1/2 inch VHS being the most popular video format.

This change will necessarily impact the current videotaping and copyright guidelines and cause BOCES to reformulate their policies. Districts should consult BOCES to determine the most appropriate guidelines. In making these purchasing decisions, it is important to know that the regional BOCES actively solicit input from the classroom teacher. At varying times throughout the year — it varies greatly from one BOCES to another — lists and evaluation forms of films and videos are distributed to each member school district. Teachers are invited to be critics of the new films and videos which

the BOCES is considering to purchase, serving as a kind of clearinghouse for distribution.

PUBLIC LIBRARIES

The 22 public library systems throughout the State are yet another repository of film and video holdings for the resourceful classroom teacher. These systems, through their member libraries, offer the public access to books, audio cassettes, records, art prints, large print and talking books, playback machines, computers, and, of course, films and video materials. Within this latter category are over 21,000 film and video titles available to the public for lending purposes.

Learning that these titles exist and where they are located is the primary purpose of the New York State Union catalog for Film and Video (NYSCAT). Supported primarily through the New York State Council on the Arts, NYSCAT is a two-volume printed version of a computer database which describes the film and video holdings of 22 public library systems and their member libraries. Also included in the database are the collections of eight other cultural organizations including the Museum of Modern Art, Cornell University, the Brooklyn Botanical Gardens and the Merce Cunningham Dance Foundation.

Although the NYSCAT catalog indicates the location of any given title throughout the State, it is not an interlibrary loan service where the actual film or video can be accessed. It is, rather, an index or locator key, which is helpful in finding out what video materials are in the State and where they are located. If it is determined that a specific resource serves one's instructional needs, it becomes necessary to consult one's local library to determine the accessibility of that particular resource. Many local libraries, and the systems to which they belong, restrict the use of film and video materials by schools and teachers.

CENTER FOR LEARNING TECHNOLOGIES MEDIA DISTRIBUTION NETWORK

The Center for Learning Technologies of the New York State Education Department maintains a television library which includes more than 1500 video programs and series that relate to instructional objectives. The Center continually updates this collection and acquires new programming on a regular basis. The Center biannually publishes a catalog entitled Looking Through the Video Glass, which describes all of its holdings in terms of title, length, producing agent, number of programs, audience and content. This publication is available free of charge from the Center's Media Distribution Center, which also duplicates and distributes all of these programs for a nominal fee.

Resource Utilization

The broadcast and videotape resources at our disposal are only as good as the practitioners who choose to use them. In New York State, educators who demonstrate exemplary classroom use of instructional television are recognized and honored yearly by the nine local public broadcasting stations in conjunction with the New York State Education Department. The Utilization of Television in Education (UTIE) Awards honor teachers for their innovative classroom use of public broadcasting's daytime instructional television programming.

The criteria for judging include:

- The extent to which this project promotes, reinforces and improves the use of instructional television programs broadcast by the local public television station during its daytime schedule.
- The degree to which students were actively and creatively involved, whether in initiating the learning experience or responding to a teacher's instructional initiative. This could include a spin-off video production, community project, new student-oriented learning modes, and so forth
- The degree to which this project fits into the overall class curriculum.
- The potential replicability and/or adaptability of the project for other schools.

What follows are exemplary examples of utilizing instructional television programs in the classroom. They are drawn from across a wide range of grade levels and content areas throughout New York State:

Paula Kwiatkowski and Mary Lauffenburger, of the Williamsville Central School District in East Amherst, New York, were interested in doing more than simply viewing and discussing a television program. They decided that preteaching and participating in subse-

quent follow-up activities would be a more interesting and meaningful use of television for classroom instruction.

The two teachers, using "High Feather," an intermediate level series dealing with nutrition, developed activities for the students to participate in based on several episodes. These activities were enjoyable and taught students about health and nutrition.

Before viewing the episode "Deep Water Test," the students were taught about the four food groups and essential daily requirements and recorded what they ate at each meal. After viewing the program, the teachers reviewed the students' meals to see if they contained the needed requirements. The students learned that their diets were lacking in vegetables and were assigned to bring to class members of this food group. For homework, the students had to help prepare, taste and write a review about a particular vegetable.

The next example focuses on a project implemented by Janice Wright, who teaches primary level gifted children in the Phelps-Clifton Springs School District in Phelps, New York. This gifted program entitled "Project Apple," teaches processes involving creative and critical thinking and research, library and self management skills. The program is based on the premise that when a child turns on to a subject of personal interest, he/she will exhibit high task commitment and creativity. This is exactly what occurred when her students viewed a program called "Garbage — A New Way of Seeing." The program prompted the students to explore the topic of garbage on a local level; in particular, the paper waste that accumulates in their homes and school. Ms. Wright's goals were to create an awareness of garbage as an ecological issue and to stimulate interest in producing creative solutions to the problems of waste production and removal.

To accomplish this, the students applied a wide range of higher level thinking skills, in addition to cognitive problem solving and planning. These activities taught them about this current ecological problem, as they derived feasible solutions to the problem.

Some of the activities they participated in were: making simulation dumps and sanitary landfills; recycling discarded ditto paper; and playing different games like "Whose garbage is it?" where students had to use deductive reasoning to guess who owned a particular piece of garbage. These are just a few examples of the many activities in which students participated. This hands-on study is yet another example of how TV can be utilized in the classroom to serve as a source to stimulate and excite children to want to explore a subject in depth.

Instructional television has also been successfully applied to classroom instruction at secondary grade levels. Linda Haist and Janet Reilly at the Mill Middle School in the Williamsville School District in East Amherst, used the series, "The Voyage of the Mimi," as a foundation for their eighth grade gifted program.

"The Voyage of the Mimi" is an exceptional series in that it contains three distinct components. The first component is a series of 15 episodes that chronicles the adventures of a group of children on a scientific whale exploration. These programs have a narrative format and serve as an "attention-getter," although they do contain some important content.

The second component of the series, referred to as the expeditions, also contains 15 programs. Each program directly relates to a particular episode in the first component. In these expeditions, the actors step out of their roles and visit various scientists to take a closer look at the discoveries made in the first series. This component has an explanatory function, and provides the bulk of the information and facts about the particular topic under study; it is considered to be the teaching component.

The third component is a series of highly sophisticated interactive computer programs, which is what sets the series apart from any other. It is an innovative approach to actively involve students in the area they are studying. The computer programs are integrated into the discoveries and content of the previous corresponding video series. This provides the students with hands-on practice with what was seen and explained to them in the other two components.

After viewing each of the first two corresponding components of the series, the students with their teachers coordinated projects and assignments that related to the series. Some project assignments included painting a whale wall; preparing a slide show chronicling their Mimi experiences; creating a logo design for Mimi activities; and tee shirt silk screening of the design. The students also utilized the computer software that goes along with the series and participated in small group instruction sessions with the teacher. The teachers planned local field trips to the Buffalo Museum of Science, the Niagara Falls Aquarium, and the Okeanos Ocean Research Foundation, to participate in a whale watch at sea. As a culminating activity, they planned a middle school exchange program to Shoreham Wading River School on Long Island.

The teachers' objectives were to engage the students in experiential learning, to foster an interdisciplinary approach to science, language arts, math and computer technology as well as to develop self-management, interpersonal and group relations skills.

This particular program is an excellent example of teachers using instructional television to promote

learning in an exciting and fun way. However, many instructional television programs not only teach the students basic academic skills, but because of the social and interactive nature of the activities that teachers can use in conjunction with these programs, they can also foster the development of higher order cognitive skills.

To Summarize

It becomes apparent upon careful consideration that instructional programming provides an array of opportunities for employing television — and more specifically, video — in our instructional pursuits. The resources are many and varied. Broadcast networks and videotape libraries abound in programming opportunities. Moreover, they offer a high degree of instructional application and flexibility.

As we set out to consider other innovative applications of television in the following chapters, it is important that we keep this more traditional and, yet, constantly evolving component of television in mind. National research data indicate that an ever-increasing number of teachers are using instructional television regularly and effectively in their classrooms. Thus, one might truly consider instructional television to be the resource of first resort.

CHAPTER TWO

VIDEO PRODUCTION: PROCESS AND PRODUCT

The Purpose

As television has so thoroughly permeated the mainstream of American life, people have come to expect practically everything from it. We hardly blink an eye at a live sporting event that is taking place across an ocean on another continent some 15,000 miles away. There is no longer any discernible difference between Ted Koppel interviewing a United States senator in his Washington studio and a remote interview with the French foreign minister from his office in Paris. Programs once considered too risque or delicate for television are now part of an almost limitless set of choices for the American home viewer. Additionally, research has proved television's power in involving students in programs that support important concepts such as developing higher order thinking skills and improving peer relationships. In terms of product, it can truly be said that television delivers.

As familiar as the product is for most of us, it is the process of television production that has largely remained a mystery, a kind of glamour world reserved for others. We remain as little children observing a magician's wonderland, forever fascinated with the illusionary appeal of the unknown. Television has helped to make our world a global village where everything is literally closer than our next-door neighbor. Within our own living rooms, we consult our TV Guide and dutifully select the channels that promise us exactly what we want. We sit back, they deliver.

But who are they? And more significantly, how do they do what they do? Were it not for the advent of low cost, high quality production equipment that is now available to consumers, we probably would not even pose this question. We would be left to merely observe the wonder that is television. But modern technology has allowed us, and our children, to literally grab hold of the equipment and become producers and directors ourselves. Easy to use, lightweight and extremely mobile, the cameras and videotape decks which are now commercially available for home and school use have opened up a whole new set of applications. We have already seen how the fascination with video has impacted all segments of society and of schools, as well.

It began with teachers stumbling across old video machines that were gathering dust in the library or AV room. These were teachers with no specific training or background in the use of video; rather, they had some passing interest or curiosity in television and were interested in the instructional applications that seemed apparent. The camera was generally heavy and needed the support of a tripod; the reel tape was not self-contained within a cassette and was, thus, subject to all sorts of mischief. But these pioneers of educational video production withstood these obstacles and found themselves involved in an educationally sound process which was fun for student and teacher alike. Before long, the technology advanced so far and so quickly that schools began purchasing this new and affordable lightweight equipment with the hope that more of their teachers might find ways to use it in the classroom. Today, in New York State alone, over 7,000 classroom teachers in one-quarter of our State's schools use video production as a tool for instruction with their students.

And what do they instruct with this process? Perhaps "instruct" is not quite the right word here. The teacher's role in all of this is somewhat akin to that of an executive producer — ultimately in charge of the process, but only as involved as the goals of the teacher warrant. Their instruction then is driven by the capability of the students; the objectives they have set for themselves and the class; their familiarization with the tools and techniques of the process itself; and the levels of production which they are undertaking, which range from the most simple of productions, using one camera, to complete studios replete with trained student production crews.

Teachers at the elementary level have used television production as a vehicle for teaching basic skills. Reading, writing and other basic life skills which are traditionally addressed at this level of schooling are all necessary in the production of a television program. A third grade classroom studying the Netsilik Eskimos will need to do considerable reading and researching on this subject to enable them to write a script for a program detailing the lifestyle of the Netsilik.

Secondary teachers have similarly used video production to stimulate active, creative thought. Whether writing a script for a self-created "soap," creating a music television vignette, or designing a weekly half-hour news program covering school and local events, students are using higher order thinking skills at an optimal level. Art and social studies teachers alike have capitalized on students' interest in television by creating learning experiences where they creatively express themselves and their ideas.

Throughout the production, students are involved in many kinds of optimal thinking processes. Organizing and listening, critical and creative thinking, problem solving and risk taking — all of these skills and many others find expression throughout the production process. In using and developing these skills, students are engaged in a process which lends a purpose to their learning. It is a cooperative venture which enables them to experience the importance and the satisfaction of working together toward a common goal.

The finished product is important, but it is the process that has the most significance for learning. Throughout the process, students experience real-life successes and disappointments, since television production is no exception among the realities of everyday living. They make contributions to others as well as themselves, because they are creating a teaching/learning tool that can be shared with other learners. They are involved in a skills identification process, by learning more about their own interests and inclinations. They are exposed to content in a way that makes learning relevant, as well as exciting.

But most important of all, perhaps, is the fact that they are learning more about the nature of the "electronic age" in which they live. By working so intimately with communication capacities such as video production, this generation stands a better chance of not being as much at the mercy of the media as generations before them have. As Mary Alice White, Director of the Electronic Learning Laboratory of Columbia University, reminds us in reference to our media-bombarded society: "One must be capable of understanding electronic imagery in order to make informed judgments.'

The opportunities which video production provides for learning are exciting and real. By seeing a project of this nature from conception to audience viewing, students come to know that there is a payoff for commitment, hard work and risk taking. Let's take a look at this process and learn how it might become a part of your school's or your classroom's program.

The Process

PLANNING AND DESIGNING A VIDEO PRODUCTION

There are many components of video production with students which call for strong management skills. Good teachers are already good managers, so prognosis is good right from the start. In addition to a producer's design and planning responsibilities, a teacher has to be teaching while managing. It can be quite a juggling act, managing a production and a classroom, insuring that all are productively involved and learning as well. But the payoff — highly motivated students who are learning while doing — makes the challenge worthwhile.

Preproduction planning is essential to achieving optimum results from the video production experience. The following considerations are common to all video productions, not just those done with children, and will help improve the quality of the educational experience.

Audience

It must be defined for whom the program is to be made. Student productions are learning experiences in and of themselves, so it becomes important that they consider who will be observing what they have created.

- Who will look at it?
- What do they expect?

Goals and Objectives

When the audience is known, it must be determined what the program is going to be about. Acknowledging one's learning objectives in light of the process ought to be clearly understood by all involved.

- What should the audience see?
- What should happen to them when they see the tape?
- What is the video aimed at achieving?

THINGS TO CONSIDER AND TEND TO ALONG THE WAY

Audience—
Who is it ?

What is
your program
content ?

Goals and
Objectives—
What are they?

Brainstorming—
an idea
generator

What
resources
do I have?

Treatment—
committing
ideas to paper

Storyboarding—
visualizing your
intentions

Developing the
script

Shooting

Editing (optional)

- What should the audience experience or learn from viewing the video?

Content outline

Video production can be a vehicle for teaching and learning specific content.

- What material must be covered?
- What is the message?
- What has to be included in the production in order to accomplish your goals?

Brainstorming

Once the goals and objectives are decided upon, it is time to determine the best method for doing the production. Brainstorming — a process by which a group spontaneously proposes ideas and/or solutions — is a vehicle for students to cooperatively and non-judgmentally generate their own personal stamp on the production.

Resources

As the production takes shape, it is important to keep in mind the budget, talent, equipment and time available when sorting through the ideas developed in the brainstorming session. An awareness of other material resources which will help your subject come alive is included within this notion.

Treatment

Before going any further with the production process, a treatment is necessary. This is a written description of the videotape intended for production. Committing ideas and intentions to paper serves to clarify the developing production for everyone involved. It can be 30 pages long or it can be a short paragraph. . . and just as effective.

Storyboard

A videotape cannot be described in words alone. A pictorial description of the events is also needed, because it is important that everyone knows what the project is going to look like before attempting it. A storyboard serves this purpose, and will be discussed later in further detail.

Script

With the treatment and storyboard in hand, it is time to develop a script. A script is a written document about the subject matter that includes both the audio and video information in a production.

PRODUCTION MANAGEMENT

Having accomplished the production steps, relax a bit. The production now has a sense of itself and what it will become. The relationship between what it is the students need to learn and what it is they will do in terms of process begins to become clear. It next becomes a matter of casting and assigning roles for production, a task which is important to both the management and purpose of classroom video. Encourage respect for the responsibilities of all the roles, assigning roles carefully and attempting not to use the same people in the same roles all the time.

Casting and the assignment of production roles should be done according to one's classroom management style. You can best identify the talents and needs of the students; i.e. — who is bold and assertive, who can write and who can draw, who is good at details and who shines when using a piece of technical equipment. Assigning children according to talents, as well as needs, generally guarantees a good mix of quality and purpose to the process.

Below are some suggested roles that indicate a few of the various needs associated with a video production.

PRODUCER: The producer is ultimately responsible for seeing that the goals and objectives of a production are accomplished. This is a conceptual job for a student working with the support of the teacher who acts as an executive producer. The producer supervises all preproduction activities; the treatment, for example, is usually done by the producer.

DIRECTOR: The director answers to the producer, but once the production begins, supervision is handled by the director, often with the advice and consent of the producer. All of the people on the set answer to the director. There is only one director!

STAGE MANAGER: This person cues, or coordinates movement on the set.

CAMERA OPERATOR: The camera operator is responsible for setting up the recording gear, setting up the shots for the director's approval, and recording and playback of the recording. This position nearly always requires an assistant.

SCRIPT WRITER: This person coordinates the script development for the producer; however, the actual writing is frequently done by committee.

STORYBOARD ARTIST: This person solely makes the final storyboard to keep the artwork consistent throughout the entire storyboard; however, the preliminary process of storyboarding is frequently a group or committee effort.

AUDIO TECHNICIAN: This person is responsible for getting sound on the tape. Setting up and placement of microphones, monitoring and playback of audio are all aspects of this job.

LIGHTING TECHNICIAN: This person is responsible

for the lighting equipment. This position requires close coordination with the camera operator. The lighting technician frequently needs an assistant due to the fragility of the instruments and the potential for danger with extremely high temperature quartz lighting. For this reason, teachers must also keep an eye on the light placement.

WIRES AND CARTS GRIPS: These people have the task of housekeeping on the set. These are important jobs because video production frequently gets unwieldy. Assignments should be clearly specified.

Depending upon the age group of the children it may be necessary to revise job allocations and what is to be expected from the students. You may wish to use a flowchart or agenda to keep track of your production progress and to build certain check points into it, as well. Another suggestion is to try using contracts to evaluate student performance connected with individual production responsibilities.

Before we move on to the camera and its role in the entire process, we should discuss in a little more detail three important preproduction processes, namely brainstorming, storyboarding and scripting.

Brainstorming

Brainstorming is a process that can be employed before any creative endeavor, not just video production. It is a group imagination technique with results comparable to fishing with a net instead of a single hook. It pulls in all of the creative possibilities of a group.

In small groups, generally not more than ten, a single project is considered for a given period of time, say 15 minutes. The rules are simple. With no restrictions on practicality, feasibility or effectiveness, all thoughts of the group members are brought up and played with. Fantasy and wild imagining are encouraged. One person, formally appointed as recorder, attempts to jot down the progress of the considerations.

After 15 minutes, the group idea-brewing halts. The recorder reads back the minutes for group consideration. The group can now consider the ideas generated by the brainstorming in a practical light.

The spirit of the ideas generated in a brainstorming session are valuable; they point to creative solutions for the challenge of conceiving video productions. A circus, for instance, not easily utilized, can be replaced with a single clown. Entire symphony orchestras, cast in the brainstorming session but unavailable to a third grade classroom, might be replaced by a single clarinetist. Themes, tone, tempo and setting are among the practical production directions that can be developed by the wildest brainstorming session.

Brainstorming offers some secondary benefits of particular interest to classroom teachers. You will get a glimpse of each individual's interest in the project, providing you with significant information when you are assigning roles in your production. Students who are ordinarily reluctant to participate in activities may blossom in the give-and-take of the group speculation.

Television is first and foremost a collaborative medium. Brainstorming is a process, early on in a production, that insures that the creative direction of a product reflects a group perspective.

Storyboarding

Storyboarding is a preproduction process of visualization, something like a comic strip. A storyboard is a reference tool, a video shorthand that permits a production team to visualize before shooting what a project will look like. Storyboards don't require artistic talent, since they are not finished products, only tools. They do require a good amount of conceptual planning and creative thinking skills, for storyboarding is the director's game plan.

In most instances, a storyboard uses a single frame or panel to represent each shot in a production. Where this is not practical or necessary, a storyboard should convey enough of the visual information needed for a production so that everyone associated with it can work toward the finished production with a common preconception.

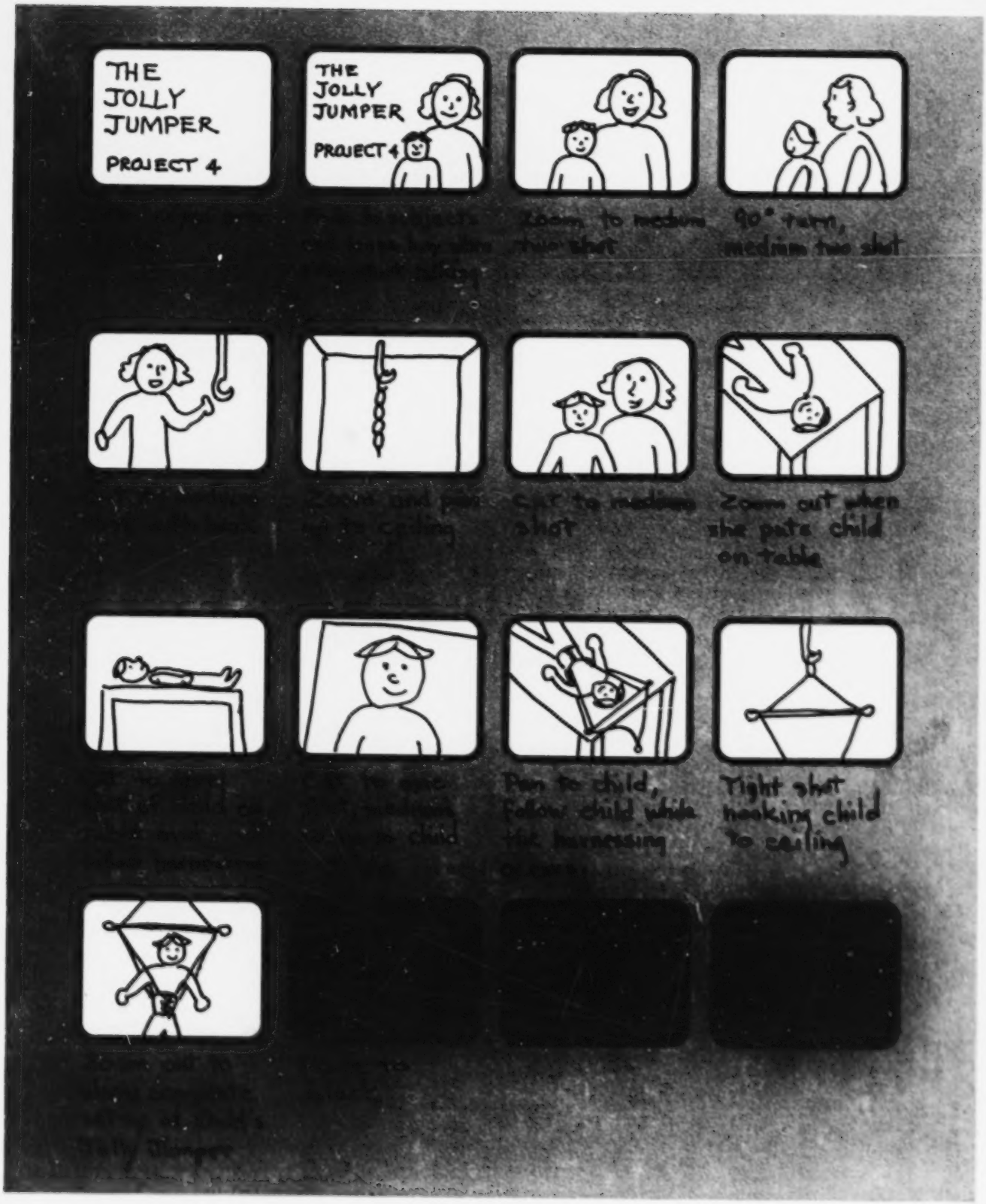
Teachers and student producers who work with a single camera without access to editing equipment will find storyboarding particularly important. Storyboarding is an essential component in a student production because it presents a clear picture of what the final project should look like, while giving the students a framework which encourages them to stick to the initial project.

On the opposite page is a sample storyboard which illustrates the use of a Jolly Jumper.

Scripting

A script is a written document that includes both the audio and the video information in a production. As a process, scripting helps to inform and is an exercise in applying composition, language arts, analytical reasoning and writing skills. The standard format for a video script includes the video description in the left-hand column with the audio information to the right of that. Corresponding audio and video information should appear next, side by side. Shots are often numbered in a script; this makes for continuity with the storyboard and helps keep track of progress during the production.

A sample script that illustrates this description follows:


THE JOLLY JUMPER
PROJECT 4
THE JOLLY JUMPER
PROJECT 4
Zoom to medium two shot
90° turn, medium two shot
Cut to medium shot
Zoom out when she puts child on table
Pan to child, follow child while she harnessing
Tight shot hooking child to ceiling

SCRIPT - VIDEO PRODUCTION WORKSHOP

	VISUAL	AUDIO
1	Fade in Graphic Fade to black	
2a	Fade to cover shot Slow zoom in to close-up	(On camera reporter) State Ed's Center for Learning Technologies is sponsoring a workshop to train teachers in the use of portable video equipment. Twenty-five teachers have come to Albany to participate in this two-day pilot program.
3	Shot of teachers having coffee	(Voice over reporter) As conference participants are arriving and having coffee, we asked workshop originator Bob Reilly to tell us what needs exist in the public schools statewide in the area of video.
4	Bob	(Bob answers on camera) The most recent BEDS survey shows that thousands of VCR's and video cameras are being purchased by school districts and that large numbers of teachers are interested in using this equipment. We hope to launch workshops like this throughout the state to meet the technical needs of teachers interested in using video in their classrooms.
5	Pan teachers at cameras	(Voice over) Video production is still in the realm of mystery to many teachers throughout the state.
6	Medium Shot (MS)at cameras	Many teachers are intimidated by the technology and they've been expressing a desire to learn more.
7	CU at cameras	We asked Tom Dunn, an Educational Television Specialist with the Albany schools and one of the designers of this workshop, to tell us the specific goals of the training sessions coming up.
8	CU Tom	(Tom answers) Our primary objective is to train teachers who have little or no knowledge of video production, to produce and shoot a video program, and edit it the camera. Post production equipment and editing will not be needed.
9a 9b	Three shot Zoom in to CU for second answer.	(On camera reporter) We have two workshop participants with us now — Mary Leahy, School #16, Troy School District, and Kathy Benson, Poestenkill Elementary School, Averill Park School District. Could you tell us what you hope to get out of these two days? (Teachers answer)
10	Dolly	(Voice over) 1st shot — Panasonic Corporation is co-sponsoring this workshop by making available some of their latest VHS portable video equipment.
11a 11b	CU Zoom out to MS	2nd shot — We have some of the equipment we'll be using on display here this morning. Teachers will have a great deal of hands-on experience over the next two days.
12	CU teachers or Truck	3rd shot — Dan Schabert, Director of Media at Utica College and one of our trainers, will tell us about one of the units available here.
13	MS Dan & camera	(Dan answers) The AG-155 is an all-inclusive Camcorder. Designed for low light taping and with a VCR and camera built into one unit, it is a very workshop by making available some of their latest VHS portable video equipment.
14	Shot of teachers (tilt?)	(Voice over) There has been an explosion of interest in video equipment in the schools. Video has applications at every grade level and it can be used creatively in almost every course of study.
15	Shot of teachers	(2nd shot) Bill Hirschen, now with the Center for Learning Technologies, was New York State Teacher of the Year in 1985. As a teacher Bill often used a video camera and produced video programs with his elementary classes.
16a	CU Bill	(Shot of Bill) I found video to be a highly motivational tool that helped my students learn such skills as self-expression and script writing. Students needed to organize their thoughts and shot sequences to produce stories in the video format.
16b	Zoom out to two shot	(Reporter) Thank you Bill, and to all participants. I hope you have a productive experience here in the Video Workshop

Now that we have looked at the important aspects of video preproduction, it is time to consider the hardware that is part of this process. We will begin by discussing some of the particulars regarding the camera and its role in video production.

TECHNIQUE

The Camera

The camera is the heart of the video production process. It would be helpful to take a look at the general features of the camera to familiarize ourselves with the things that one needs to do and know. Achieving optimal results with a camera requires some detailed technical knowledge and awareness. To that end, in addition to all of the other intricacies of classroom video production, the Center for Learning Technologies has published a manual on video production for teachers, with particular emphasis on the finer details of camera operation. We present here a basic introduction to the camera and its capabilities, orienting you to its key features and functions.

Usually, when children get together for a baseball game, many of them want to be the pitcher. Or, if it is a football game, many want to be the quarterback. In classroom video production, all want to get their hands on the camera. Perhaps that is because operating the camera is central to the whole process; it is where the action is. Or maybe it is because of the power or sense of importance one experiences in determining what the camera sees — and what, consequently, the audience will see.

Whatever the reason or rationale, operating the camera and applying it appropriately is critical to the production of a video program. Familiarizing oneself with and learning how to operate a camera is essential for undertaking the video production process. Few things are as unsettling as standing around a camera with a group of 25 excited students trying to figure out how it works. The manual available from the Center for Learning Technologies, in addition to other resources such as the help of the school's audiovisual director, is a useful vehicle for learning step by step the video production process. For our purposes, we will consider five fundamental considerations which one may wish to keep in mind when using a camera.

Shotmaking and Shot Selection

The presentation of camera shots in television and movies follows a logic similar to English grammar. Shots are the words and paragraphs of video. We have watched so much film and television in our lives that we expect to see conformity in the unwritten grammar of shotmaking. The conventions of shotmaking are so well established that when they are violated, a piece appears jerky and does not flow smoothly. Learning about the different kinds of shots — establishing, cover, long and medium shots, close-ups and extreme close-ups — and applying them effectively in one's production can insure an effective production.

Camera Movements

Camera movements in the course of a shot offer variety that can spice up your productions. However, movement can also make a production seem tedious and difficult to follow if the zooms and pans are overdone. Make a point of familiarizing yourself and your class with typical camera movements that will contribute to a more professional production.

Camera Point of View

Changes in the relationships of people on the screen, as well as in the viewers, perception, can be achieved through your choice of camera position. It becomes important to keep this in mind when working with young students or groups where height varies.

Transitions Between Shots

Transitions are techniques for beginning or ending a scene or for connecting different scenes. Learning a few simple transitions between shots will give more content to your production.

Composition

A carefully framed shot is essential for good looking video. Be careful to take the time to set up a shot in such a way that the information you wish to convey is coming across clearly.

Lighting

Lighting is the key to the quality of the visual picture. Its importance cannot be overemphasized, for it is a powerful method for creating effects in keeping with one's purpose and vision; it is a dramatic device which can help to accent a character and create a particular mood. For example, President Lincoln's hard choices and the agony he experienced as a result of those responsibilities, can be effectively portrayed with lighting that is consistent with the message of the material being imparted. Conveying a subject in an aesthetic sense is an important developmental skill and a valid instructional activity as well.

Audio

Good sound is an important consideration in video production. When it works properly, it is unnoticed. Poor audio can be a big distraction. As with good lighting, good audio can also be used to create moods and to enrich the communication of the video. Carefully think out the appropriate location and number of microphones to be used in the production, and be certain to assign someone to monitor your audio. The best insurance for audio quality, however, is to listen to it as it is recorded. If you have headphones, use them; if not, the video monitor can serve the same purpose.

Graphics

Words in the form of graphics are a great complement to a video production and can be used in the beginning, middle, and at the end of the videotape. Titles and credits are obvious uses of graphics as are labels, charts, and subtitles.

Video Add

One technique that will enhance your productions and permit more flexibility is VIDEO ADD. This allows you to put video, either from a camera or another recorder, into a previously recorded tape.

Audio Dub

Audio dubbing from a microphone or other source is another versatile technique for post production. Audio dub allows you to put sound — either a narration or music, live or prerecorded — into a previously recorded tape.

LEVELS OF PRODUCTION

It is important to consider the complexity of video production to be undertaken. School video production capabilities fall into three different kinds of productions, each one increasingly more sophisticated than the previous one.

One Camera — One VCR: In-Camera Editing

The simplest and most common form of video production involves one camera and one VCR. With this equipment, a recording is done and then played back. Editing in camera is the process of shooting a production in sequence so that the production is finished as soon as the shooting is. Preproduction planning is central to this process. This kind of organizational thinking and planning is an example of how using basic life skills finds expression in video production. The techniques of storyboarding and scripting are critical to in-camera editing.

An advantage of editing in the camera is its concreteness, where the production crew is involved in the total process every step of the way. Students stay on task more readily in this process because it is sequential and constantly visible. In productions which have many layers of production and post-production, the cast and crew often have no connection with concept beyond their single production assignment.

For younger students and teachers with little or no experience in video production, editing in camera is most appropriate. It requires little knowledge beyond the basic operation of the camera. However, this does not exclude the more experienced teacher, since editing in camera lends itself to many creative applications.

One Camera — One VCR: with Editing System

Another level of video production that more closely resembles the way video is done in the real world involves editing videotape after it is shot. This opens up a whole realm of post-production options allowing for greater flexibility and creativity. With an editing system, one need not tape everything in sequence. Let us say, for example, after taping a performance of a dance routine, a teacher decides to demonstrate to his/her class a number of specific steps in more detail. After taping each step individually, an editing system allows the teacher to move from each demonstrated step to the performance itself to show how that step integrates with the routine as a whole. The final sequence is determined in the editing process after all of the shooting has taken place. Additionally, an editing system allows for smoother, more polished productions where the timing and pace of the video piece, and the transitions between the scenes, becomes a variable in the hands of the editor.

Editing systems require considerable technical knowledge and access to highly sophisticated equipment. In lieu of this, one must have access to a skilled editor. Do not be discouraged. Public access stations exist for the purpose of sharing their facilities and expertise, and instructing interested members of the community, including teachers and students. Because of the more technical nature of this level of production, older students are more appropriately used in editing.

Studio Productions

The most sophisticated and structured of the production environments is the multiple camera setting of the television studio. The studio, often equipped with a set, is well suited for any kind of regular programming where two or more cameras are called for, such as interviews, news presentations, demonstrations, dramatic presentations and the like. When operating at this level of production, a professional media teacher is necessary to fully utilize a studio. Courses in production that meet on a regular basis are necessary to create a core group of students who can serve as a cohesive production crew. These trained, older students could, in turn, work with younger students to cooperatively produce a video program. This creates broader opportunities for younger students who otherwise wouldn't have the chance to work in a studio, and for older students who might wish to pursue work in this field.

The Product

PRODUCTIONS FOR CONSIDERATION

The most creative and challenging part of the process is to apply video production in a manner that assures that productive learning takes place. This is a tremendously important step. There are as many directions to turn as there are forks in a country road. The most crucial part of the process is to determine your purpose and, consequently, your goals and objectives. This may be determined by the individual teacher who has a distinct vision in mind, or by enlisting the aid of the classroom students.

Examples of videos that have been produced by classroom teachers and their students through the years indicate a very broad range of program subjects and topics. Elementary teachers have tended to use video production as an alternative approach to the instruction of basic skills, both cognitive and affective. Videos have similarly been produced to introduce the school and its programs to new students, families and other community members. Teachers have used videos to teach a specific content area. The teacher who wanted to teach about the Netsilik Eskimos of Alaska in a less than traditional way, chose video production to do so. Secondary teachers have applied video in ways that promote the learning of their particular subject matter. These videos tend to be more focused and aesthetically oriented than their elementary counterparts; art teachers, as well as social studies teachers, use video as a vehicle for expressing what their students are learning.

What is most important of all is being clear on what your purpose is. You need to know what it is you are trying to accomplish and whether or not video production is a vehicle for achieving that. This is Job One.

Making a video is a practical tool for teaching content, subject matter, and for developing skills. The flexibility of this activity allows the teacher to function with the whole class, a group of students, or one specific student. Since it is an enjoyable activity for the students, it can also be used as a motivational device to involve reluctant participants in the learning process. It is important to keep these things in mind before embarking on a video project. You, as the teacher, must decide whether the students, as well as yourself, are capable of undertaking the kind of commitment that a project such as this demands.

What follows is only a small number of options when entertaining the notion of video production for your classroom. You know best what it is that you need to teach and likewise, you will know how, and whether, to apply this process to your teaching efforts. This list will serve as an idea generator for you and your students, stretching your imagination as though limits to it do not exist.

- Tape science labs and experiments and use them as a preview.
- Research a topic and create a video "show and tell" in a documentary format.
- Use as feedback for any group mastering a particular skill or process, i.e., athletics, speeches, foreign language, speech therapy, interview techniques, student teaching and the list goes on!
- Create role playing scenarios on a variety of topics.
- Stimulate writing by having students:
  write audio dubs for existing video material
  connect unrelated scenes with words
  write scripts for a number of different genres
- Re-enact 'You Are There'-type topics as they relate to the curriculum.
- Demonstrate subjects which you want students to be familiar with — i.e., programs on Bus Safety, How the Library Works, Behavior in the School Cafeteria, to name a few.
- Have your class keep a video journal. This could be a biweekly report, with different students each time, describing the highlights of the past two weeks.
- Have elementary students prepare a tape for the next year's class to see on the first day of school.
- Create a library of career studies tapes based on interviews and visits to people in the field.
- Create a 'Nightline'-type program on any topic pertinent to the curriculum.
- Dramatize an example taken from the literature taught in an English class.

- Make the life of new students easier by producing a Video Guide to the school.
- 'Write' a video book report where students 'visually' describe their book.
- Produce a video journal of the way things used to be.
- Use "image magnification," a process using a video camera to capture a teacher's laboratory work on a television screen, enabling all of the students to have front row seats rather than standing around a crowded lab table.

Student video productions don't have to stay in the classroom. They are marvelous resources that enable schools to communicate with the community. Cable systems usually are required to play programs that the schools would like to have aired. Additionally, public forums, Board of Education meetings, service organizations. . . these and others, are all places where your tapes will be well received. Here are a few further suggestions:

- For open house during American Education Week, make a tape of the day-to-day activities in the class to show to the parents.
- When budget time comes around in your district, make a tape illustrating the need for any special budget request being made that will impact on you. Show it to influential people.
- Make a commercial for whatever fundraiser or special program is happening in your building.
- Keep "an ear to the ground" for news of video contests and have your students enter them.
- Keep abreast of the State Education Department's New York State Youth Media Arts program and encourage students to attend the regional shows which provide a forum to exhibit students' work for audiences of students and teachers. (This program provides constructive feedback for student producers and identifies the most gifted high school students for participation in the New York State Summer School of Media Arts.)
- Get on cable with news of your school, including athletic events and the like. Contact the cable system that services your school and find out how to use the public access channel.
- The New York State United Teachers (NYSUT) has an excellent monthly video magazine entitled "Inside Your Schools" which is produced by teachers to show to their communities. This is a great way to pick up skills while working on challenging productions.
- Get involved in videotape exchanges with other students who are also producing videos in other regions, states or countries. Once you and your students have worked with video, you will have a new appreciation for student productions and will want to know how others are doing things.

Video is a quickly changing field with new developments coming at a rapid pace. Keeping up with the changes is done in a number of ways. Magazines and catalogs are great resources, and many of them free. Once you get on the right mailing list, the magazines will start to come unsolicited.

People resources are another great source of information. Video is becoming pervasive in our culture. Many people work with it — or at it. Find out who does and bring them in for advice. Local television stations have a real need to give tours and send out speakers. A video artist-in-residence may be secured through the New York Foundation for the Arts to serve a residency in your school who could provide staff development.

Finally, make a point of finding other teachers who use video. Let your colleagues know what you're having success with and what isn't worth doing again. Remember, we come to video making with our own unique styles of solving problems. The art teacher will be primarily concerned with the way it looks, the English-Language Arts teacher with the narrative or text, and the library/media specialist with the technical aspects. We all have something to contribute or learn. Networking works!

CHOOSING EQUIPMENT: STRATEGIES AND CONSIDERATIONS

Equipment is available from a number of sources. It becomes important at this point to consider where and how video production falls into the priorities of your class or school. If one is experimenting with this concept and merely testing the waters of video production as a classroom application, borrowing is one of the easiest ways to get a hold of production equipment. Take a look around your school, as well as your district; it is often available in another school or department. Athletic booster clubs, service organizations, PTAs, A/V departments and NYSUT locals often have the equipment and don't publicize its availability. Check these out.

If, on the other hand, video production is perceived by teachers and administrators alike as. . .

- an effective vehicle for learning,
- capable of motivating students,
- an avenue to greater awareness of the media and how it affects our lives,
- an enjoyable process for teacher and student alike, and
- an opportunity to become more familiar and comfortable with the emerging technologies,

and a new means of communicating and creating

. . . then purchasing this equipment may be the route to go. The prices are relatively low cost and owning one's own equipment will certainly make accessibility far easier and efficient.

In order to purchase equipment for classroom productions, it is necessary to assign priorities to your objectives, costs and formats. Your basic requirements will follow from a simple needs assessment.

Much information on equipment is available from the numerous catalogs which are produced by the manufacturers and dealers. Consider others working with video as a resource as well. Vendors and dealers are always eager to talk. Make a point to attend any of the dealer's periodic shows or displays.

$$$. . . THE BOTTOM LINE . . . $$$

Make a well-planned and interesting presentation to the Board of Education. Explain to them how video production helps to motivate children to learn and to work with others in a cooperative spirit. Show them a sample of what has already been produced by children and make clear the important contribution this process makes to their educational experience. Know how your district does its budget and be prepared to justify your costs.

Be aware of, and on the lookout for, grants. Teacher Resource and Computer Training Centers may be a source of information. Often, parent-teacher organizations and booster clubs may have money looking for a valid way to spend itself.

Investigate who's doing similar ventures and what equipment, facilities and personnel can be shared and/or borrowed. Many local teacher unions are involved in video and may be of help.

Learn to lobby the right people because the money is there. It's a matter of connecting with the right people and not giving up until you have what you want.

To Summarize

Producing video programs with children is a unique way of bringing relevance and meaning to the learning process. When students research a curriculum topic, they are involved in a complex process that employs their thinking, creativity, and cooperation at an optimal level. For example, they are. . .

. . . studying and writing a script that will eventually be portrayed by their classmates;

. . . brainstorming ideas that will help to create a visual statement about their feelings regarding a topic of concern (e.g., apartheid) and how life would be better or worse without it; and,

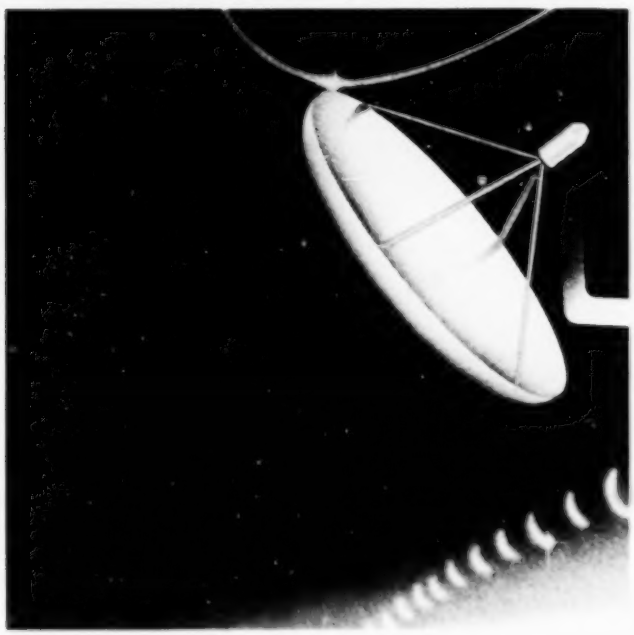
. . . lending their hand to many technical chores implicit in a complex technological and sociological process.

Additionally, they are obtaining a birds-eye view of video and how it is produced, a valuable insight in this image-inundated society of ours. In fact, one might go so far as to say that it is critical to expose children to this kind of process in school. After all, it is they who will inherit our visually oriented society. No generation before them will have had to wade through quite so much "image" in order to get to the "substance" of the matter. By being producers themselves, they are learning to distinguish between the two — learning by doing in its purest sense.

As the visual technologies continue to pervade our society, they will emerge in our schools and classes, as well. With these increased instructional choices come the likelihood that more effective teaching and learning will take place. We, as educators, must be aware of these choices . . . and choose wisely. The future is ours.

CHAPTER THREE

DISTANCE LEARNING: A CAPACITY FOR LIFE-LONG LEARNING



The Concept

The document which you are presently reading might never have come to fruition had it not been for this most recent and perhaps innovative use of the visual mediums. Distance learning has arrived on the scene with an almost daring kind of suddenness. Almost overnight, teaching students from outside the traditional classroom has gone from concept and theory to reality for many learners.

By way of definition, distance learning refers to instruction that occurs at a point distant from the location of the learner(s) with an interactive audio and/or visual component. So much for definition. We will find as we read that there are many other applications for distance learning beyond instruction. "The imagination is our only limit," says Bonnie Bettinger, Superintendent of Schools for the Gouverneur School District in Gouverneur, New York. Her school district participated in one of six distance learning pilot projects operating in New York State as of September 1986.

Our information based society places a tremendous amount of reliance on telecommunications. As information continues to become an important resource, moving that information is becoming our nation's fastest growing industry. Examples abound in government, health care and industry where communications networks are used effectively to deliver the goods and services which affect almost every aspect of our lives.

The telecommunication technologies, from which distance learning emanates, include the transmission of audio signals in the form of voice or music, or in combination with a video signal, or a silent, high-speed invisible stream of encoded data. These signals are broadcast as radio or television, or transmitted via satellite to land-based stations. At these stations, long lines of copper wire, cable or microwave carry the signal the last few miles to our homes, schools and workplaces. These technologies allow for the formation of communication networks among groups with common or specialized interests. It is no longer unusual for doctors, businessmen and other professional groups to meet regularly via teleconferencing or similar computer networks. Distance is no longer a significant factor regarding the function of communication. Information exchange is immediate.

These emerging technologies hold great promise for education beyond their present applications in business and industry. The business of schools has always been the transfer of information and knowledge from one generation to another. In the beginning of our country's commitment to public education, the one-room schoolhouse was an excellent vehicle for delivering educational services. There, the learned teacher provided students with all the information at his or her disposal. The agrarian society of the day stressed only the most basic of skills, thus, the school did as much as was asked of it and as well as anyone could hope for or expect.

With the coming of both the Industrial Revolution and the wave of immigration, the one-room schoolhouse expanded to the public school concept in order to meet the growing demands placed on it. Again, a useful delivery system was in place. Public schools, whether in the form of centralized school districts or neighborhood entities which reflected the values of the community, were mechanisms for imparting information, knowledge and ultimately, wisdom. More importantly, they also assimilated the growing numbers of foreigners who would join with the local children to become the emerging Americans. The public school — as a socialization vehicle — was in place, and doing the job as well as any other institution at the time could hope to do.

Welcome to the postwar era! This period brought on a flurry of technological advances amidst an alarmingly fast growing birth rate, the likes of which was never before seen on these shores. The baby boom left in its wake a generation of young people determined to grow along with, and beyond, those who had made this country great. And good that they did, because for the first time, America was facing political, social and economic challenges abroad that transformed the world in a radical way.

All of these developments have had a fundamental impact on public education. This fast paced and rap-

idly changing society has, through the years, placed heavy demands on the schools to deliver improved and increased services to more people more efficiently. Gradually, but surely, public schools have, in some instances, been perceived as falling short of the bill and not delivering what we have come to expect from them. As a result, the nation was perceived as being "at risk" and public education's greatest test of its ability to provide a quality learning experience for its citizens was at hand.

The political environment in Washington was one in which the states were "encouraged" to solve this one on their own. Task forces from virtually every state in the union further increased the already huge demands placed upon schools to reform and deliver the excellence which the public was demanding. The New York State Board of Regents responded in kind by adopting an ambitious Action Plan to Improve Elementary and Secondary Education that would better serve its students and further tax the State's educational institutions. State legislatures were also delivering assistance in the form of additional resources.

The more stringent present-day requirements that all schools are facing will place increased demands on both schools and students. All schools — urban, suburban and rural — are faced with comprehensive school improvement initiatives. This strain, however, will be particularly acute in the more than 400 rural school districts of our State. Rural schools have traditionally faced problems unique to their geographic location and nature. The remote areas of the State have trouble attracting teachers, particularly in the subject areas for which there already exists a virtual dearth — namely, math and science. In the past, these schools have turned to consolidation — combining several schools to increase the resource and student base — in order to economically expand educational offerings. But with this approach, came costs as well as benefits. Add to this the reality that rural school enrollment numbers continue to decline and what you are faced with is an educational access problem of monumental proportions.

Today, we find ourselves faced with the challenge of meeting the public's demand of offering a quality educational experience to all of our nation's learners. In New York, the Regents Action Plan has been implemented to create standards for local school districts to gauge their progress. Delivering the improved services and increased requirements is a major concern of districts whose responsibility it is to implement the Plan. Rural schools, in particular, will be hard put to provide the necessary courses for their college-bound Regents degree students. Even our suburban and urban school districts are feeling the squeeze as the insufficient supply of teachers continues to dwindle, particularly in the previously mentioned technical areas of math and science. Small wonder that we have begun to turn to the communication technologies for answers to some of our most pressing problems.

The Context

Distance learning is an excellent example of how advancing technology can be shaped to meet the needs of the customer — in this case, the lifelong learner. The delivery systems employed in the distance learning projects we will be considering are technologies which private industry and business have been successfully employing for some time. We, in education, now have both the need and the opportunity to call upon the vast telecommunications networks and technologies which presently exist and apply them in an educational framework which will effectively serve the needs of our State's learners.

The increased demands on the schools did not happen in isolation. Along with these demands has come an inadequate supply of teachers in specific subjects. This problem is further intensified by schools with smaller student populations and limited resources.

As a means of addressing this challenge, there has been a phenomenal growth in the planning and implementation of distance learning networks throughout New York and the nation as schools, colleges and cultural institutions struggle to provide higher quality and more equitably accessible education. A distance learning network, as such, may consist of a teacher and a class of students, often a small group of perhaps five or six, in one school linked interactively to students in classes in other remote schools. The teacher and students converse and learn over distances through a

telecommunications medium, such as — but not limited to — cable, microwave or telephone based systems with computers and modems. The networks may allow for the transmission of both visual and audio signals, therefore, both the teacher and the students are able to converse with, and see each other or their work, despite the fact that they may be separated by many miles, or even continents.

In New York State, distance learning projects in various stages of operation and planning have emerged statewide involving nearly one-half of the public school districts and Boards of Cooperative Educational Services (BOCES). Most of these projects have been undertaken by small schools with limited or declining enrollments which, consequently, have limited fiscal resources from which to draw. For the more than 400 schools in the rural areas of New York State, these problems are nothing new. Administrators have always had to deal with a problem which is unique to their geographic location and nature — the problem of providing access to educational opportunities for youngsters stretched across miles of countryside. These areas have traditionally had trouble attracting teachers.

Past attempts at providing rural students with the same kinds of opportunities as urban youngsters have had questionable results, at best. Busing students from a home school of record to a distant sight and then back again has been costly in terms of both time and money. Closing local schools and consolidating with other districts have been hefty prices to pay for some small local communities whose schools have been important rallying points for community activity, as well as repositories for social involvement and cultural enrichment.

Rural school districts have, traditionally, been limited in the number of programs which they have been able to offer their students. It is difficult to justify offering a course in advanced placement Calculus, for example, when only a few students would take the course. Yet, it is exactly this kind of course which our districts, a majority of which are small with limited numbers of students and instructional personnel, need to offer if their students are to be properly prepared to enter an increasingly competitive workplace and economy, both nationally and abroad. In short, these schools are faced with an educational access problem of monumental proportions.

It may come as no surprise to learn that distance learning in New York State has its roots in the more geographically remote areas of the state. These schools, already hard-pressed to deliver educational services to a widely scattered population, find themselves in the almost impossible position of delivering increased academic requirements brought about by the Regents' Action Plan. They were the first to recognize the need for practical, comprehensive, cost-effective innovations that would help them to address their pressing concerns. It was in this context that they turned to the use of the telecommunications technologies as an educational tool.

While these more rural areas were the first, many other educational and cultural institutions have begun to follow suit and explore the possibilities of distance learning networks. Our more urban and suburban schools, as well as postsecondary and adult education institutions, are cooperatively investigating the potential of distance learning as it relates to innovative and advanced placement courses, adult literacy and training/retraining programs, staff development, and homebound instruction for the disabled.

In a later section, we will take a look at some of the pilot projects which pioneered this and are now operating throughout the State, and in so doing, get an idea of the range of technologies in existence which are capable of delivering learning at a distance. As distance learning efforts began to unfold, New York State witnessed six operable and seven planning projects in the 1985-86 school year. This flurry of activity prompted the State to take notice and legislate an initial round of funding which saw nine additional projects receive grants totaling $325,000 (Consult Appendix D and E for a listing of these projects and the projects functioning throughout the 1985-86 school year). Future plans call for further legislative efforts in support of the continuing emergence of distance learning initiatives.

We will learn of opportunities in addition to the conventional K-12 classroom-bound instruction that are by-products of these advancing technologies. When a communications network or "highway" is established, these traditional learners are not its only travelers. A whole host of opportunities opens up for effective, cost cutting applications across the board in schools and universities, in education and beyond.

Additionally, in looking at these technologies and how they are employed in a variety of applications, we will see how partnerships are effectively employed at many levels to bring about shared services among and between secondary and postsecondary schools, and private enterprise. This involvement and alignment of resources is proving to be an effective way to deliver more and better educational services to those in need of instruction.

Before we turn to these technologies, however, and the projects which employ them, let's consider the elements related to planning and implementing a distance learning network.

The Content

Initiating an instructional network of this nature requires thorough and thoughtful planning to insure that an efficient and cost-effective approach is undertaken. What follows are seven suggested components or elements to consider in the planning stage. These steps are not systematic nor "carved in stone," but rather, are a structural way to begin looking at and thinking about properly planning and implementing a distance learning network.

The components are:

- Needs Assessment
- Curriculum Planning: Development and Integration
- Technical Feasibility Study
- Distance Learning Network: Design and Implementation
- Human and Fiscal Resource Determination
- Staff Development
- Evaluation

Let's take a closer look at each of these elements separately and see how their consideration might prove to be helpful in thinking about planning and implementing a distance learning network.

Needs Assessment

The purpose of this component is to identify the variety of educational and cultural needs which might be addressed by distance learning. This step is necessary for identifying the content and the type of distance learning capacity that needs to be installed. In considering the establishment of a distance learning network, one might wish to give some thought to questions such as:

What specific instructional and staff development needs exist, if any?

What specific adult learning or retraining needs are there in the region?

What state requirements (Regents' Action Plan for the K-12 sector, Postsecondary Plan for the postsecondary sector) might an instructional network address?

What demographic, geographic and fiscal constraints, such as geographic isolation or declining population and resources, exist that might be alleviated through an interactive distance network?

What programs might be introduced, saved or reestablished by a cooperative partnership of secondary, postsecondary and other educational and cultural institutions?

Curriculum Planning: Development and Integration

The curriculum and instructional strategies for the distance learning programs that were identified in the needs assessment process should be fully expressed as part of a comprehensive curriculum development activity, including the selection of supplemental educational resources.

Initially, it is important to develop broad content goals with regards to the instructional intentions. Learner competency statements also need to be developed which clearly indicate what will be expected from the students participating in this project. Additionally, one needs to:

- develop instructional strategies which are suitable for the distance learning curriculum and which capitalize on the capacities of the network (This should include follow-up activities as well.);
- develop the curriculum by assembling and reviewing the targeted curriculum areas(s) from the State and local participating districts/agencies, and assess the common core curriculum for each area; and
- create criteria for selecting the appropriate learning technology resources which will supplement instruction and determine the necessary copyright/broadcast policies.

Technical Feasibility Study

The purpose of this component is to assess both the current and extant telecommunications capacities as

well as future technologies that might be used in the network. Most frequently, this is done by a qualified technical consultant, or firm that prepares a feasibility study which includes appropriate documentation, clearly explains which technologies have been explored, why one was chosen over the others and what the cost implications are. It is important to keep in mind the:

- telecommunications systems which currently exist within the region to be served by the project, including both the participating institutions and other local capacities, as well as currently operating out-of-state capacities;
- local, regional, state and national regulations, laws and licenses related to these technologies that might enhance or inhibit their potential deployment;
- current and future technologies most appropriate in light of the proposed instructional needs;
- issue of compatibility with regard to the selected technology(ies) and the existing technological resources and systems of the participating institutions; and
- other technologies and facilities, such as video production, that might be effectively employed to support distance learning

Distance Learning Network Design and Implementation

The purpose of this element of the planning process is to design and implement a distance learning network based on the analysis of needs and the technical feasibility study. The design of the system to be implemented should provide descriptions of the following:

- transmission technology
- technology to be installed at each receiver site
- hardware/software requirements
- operator requirements
- interactive capacity

Additionally, the proposed system should:

- be flexible for diverse utilization;
- be designed to address life-long learning needs; and
- have an instructional design which capitalizes on the specific features of the system.

Sufficient preparation is an extremely important factor. Be certain to secure all required licenses, permits and necessary approvals. Furthermore, be sure to prepare:

- a budget which indicates capitalization and recurring costs;
- an implementation plan which indicates timelines and pilot testing;
- a facility(ies) plan which indicates costs, such as maintenance requirements and procurement specifications.

Human and Fiscal Resources Determination

The purpose of this component is to identify the total first year and recurring annual costs of the distance learning network. The sources of current and potential funding should be identified. Costs should be specified for the following:

- needs assessment;
- curriculum planning;
- staff development;
- the technical feasibility study;
- the procurement and installation of the network and
- the evaluation component

Staff Development

The purpose of this component is to develop a comprehensive staff development program for the distance learning network. The instructional strategies and selection of resources described in the curriculum planning component earlier can be carried out during this component.

Four key activities include the:

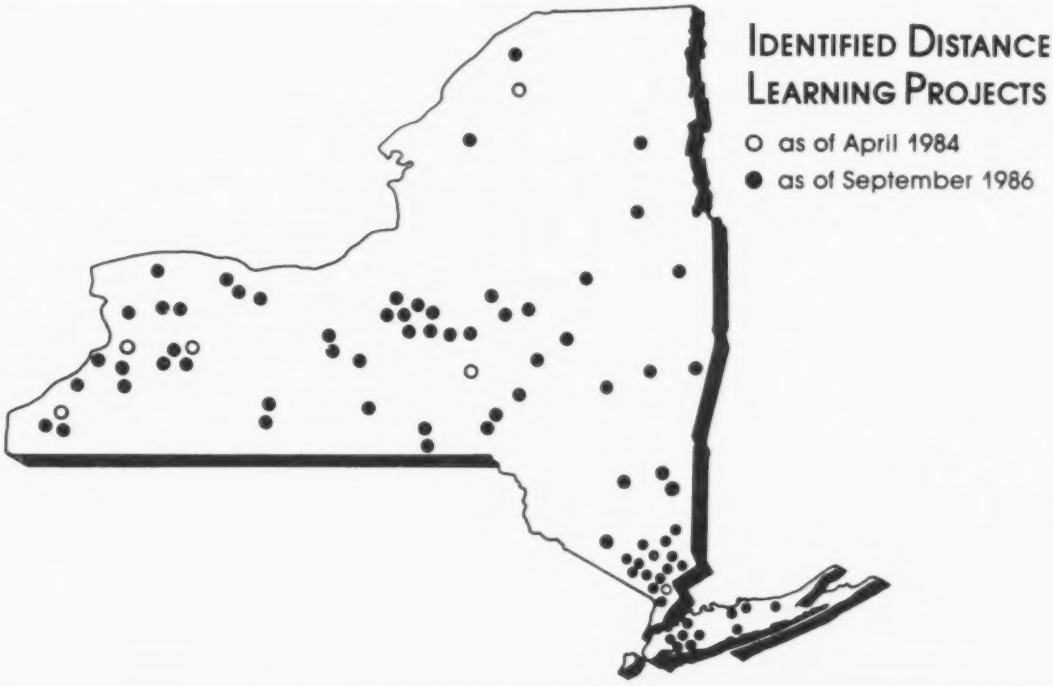
- identification of required teacher competencies for distance learning instruction;
- determination of existing teacher competencies for distance learning;
- clustering of required teacher competencies for distance learning and
- development of and provision for distance learning staff development programs.

Evaluation

The purpose of this component is to evaluate the effectiveness and efficiency of the network. The following evaluation activities are encouraged for curriculum planning and staff development as well:

1. identify the criteria which will be used to measure the achievement of objectives;
2. prepare required internal and external evaluation instruments and designs, including timelines;
3. identify the elements to be addressed in the evaluation of the network including instructional effectiveness (student/teacher performance, instructional design effectiveness and quality of interaction) and technological efficiency (the ease of operation and the capitalization and recurring costs);
4. prepare a report.

The Capacities



CABLE TRANSMISSION

Recent advances in telecommunications have provided educators with unique opportunities to deliver instruction to students who otherwise wouldn't have the opportunity to receive it. Downstate New York, in Westchester County, eight schools have joined together to form the Interactive Telecommunications Cable Project through the use of an existing public access cable television affiliate. Under the direction of project coordinator Mike Kolesar, a Latin 1 course was offered to two of the consortium's eight members, Ossining High School in Ossining, New York and Pleasantville High School in Pleasantville, New York.

The technology to transmit and receive the live broadcasts was provided by American Cablesystems of Ossining, New York. Students at the two schools were brought together by a cable connection. Both school sites were equipped with monitors, cameras and microphones and were interconnected by two public access channels, providing them with a live two-way audio and two-way video interaction. Everyone can see and hear one another; the system is totally interactive.

Perhaps the most significant aspect of the Westchester project is the fact that it capitalized on an existing resource that was already in place, waiting to be utilized. No towers had to be built; no large grants were necessary to get the project off the ground. To the credit of those involved, an effective partnership was formed among the participating schools and American Cablesystems. The cable company made two channels available and fully cooperated by freeing

up these channels on a daily basis to facilitate the 45 minute lessons.

The use of interactive cable television allows the participating teachers to use their own personal approach to classroom instruction. By using such typically sound teaching methods as discussion groups, demonstrations and lectures, the interactivity with the distant class becomes an extension of the "live" class. The system allows for the students to simultaneously participate in discussions and allows the teacher to administer tests and quizzes.

A major implication of this project is the evident need for distance learning as a delivery mechanism for instruction but is not limited to rural schools. In Westchester, a suburban community north of New York City, schools are facing a serious problem in declining enrollment. This lack of "critical mass" is making it difficult to have specialized and college preparation classes available for the students in a cost effective manner. Says Frank Gray, Superintendent of Schools for the Pleasantville School System, "We hope in the near future to expand the offerings that we presently have in our school districts to include courses in Chinese, Russian and advance placement subjects."

As for the future, the outlook in these schools is good. Because the students did so well and enjoyed the experience so much, Latin 2 has been added as a follow-up to Latin 1, which will again be offered next year. As Pleasantville and Ossining continue to explore with other districts the possibility of expanding the network, American Cablesystems is proposing to wire all of the high schools of this consortium and make for a "closed loop" which would expand the networking possibilities of the participating districts, at least at the secondary level. The reality of this step will depend on monetary support and positive evaluations as the project continues to unfold.

This formal evaluation will follow on the heels of a less formal evaluation of the project. The three students who took the Latin class from a distance participated in the National Latin exam and two of them received recognition for high achievement. One of them was the recipient of a Silver Medal and the other a Certificate of Merit on the national exam. The proof is in the pudding, so to speak.

As an outgrowth of his experience in implementing the first cable distance learning project in New York State, project coordinator Kolesar is writing a manual to serve as a model for other school districts to refer to as they go about the various stages of planning and implementing a similar endeavor. Kolesar is quick to point out the additional uses of such a system. Both Pleasantville and Ossining have held joint and separate televised board meetings, and are looking to put the system to work in other ways, including interactive teacher training sessions to meet their staff development needs.

Above and beyond this particular project in Westchester, cable offers innovative and inexpensive communication opportunities for adult education and the homebound as well as incarcerated learners. From high school equivalency courses to classes dealing with specific skill preparation or updating, a community cable station offers access to an instructional delivery system already in place. The potential for the community it serves is enormous. In Reading, Pennsylvania, community cable television offers a regular program entitled "Generation Gap," where senior citizens and high school students use the system to discuss differences between their generations in an attempt to promote more understanding between young and old. Another example is the Adult Learning Center in Albany, New York which offers a telecourse that prepares participants for their high school equivalency exam. Upon completion, participants are eligible to take the high school equivalency exam at any number of locations.

The development of satellite-to-cable transmission links enable cable systems to be the final step in an interactive satellite conferencing system. Using such a system, educational groups can, as do business and industry, conduct national or international teleconferences from almost any location in the country. The conference proceedings are bounced off of a communications satellite and received by a satellite earth station at a public television station or local cable operation. Groups scattered throughout the country can then watch the conference proceedings on a local cable channel.

The possibilities which exist for cable to act as a source of learning and service for its public are boundless. It will require imaginative and open-minded thinking on the part of those who both use and operate it. To that end, the New York State Cable Commission is charged with the responsibility of: 1) ensuring that cable television systems reach maximum penetration to the extent that it is both economically and technologically feasible; and 2) promoting new development which will enhance its own public effectiveness. The Education Department is supporting the Commission's proposed rule change that would provide channels for public access, government, and educational purposes. Availability of these channels statewide could significantly enhance the distance learning opportunities for all.

AUDIO-GRAPHIC TELECONFERENCING

The tele-learning project entitled Educational Telecommunications in Small Rural Schools, operated by the Delaware-Chenango BOCES, was launched in

Norwich, New York in the spring of 1985. Its existence is an example of an emerging trend that we are beginning to see in governmental public-private sector partnerships. It is funded as a cooperative effort between the State Education Department, the New York State Legislative Commission on Rural Resources, the Delaware-Chenango BOCES and its component districts, the United States Department of Education, AT&T Communications and the IBM Corporation.

The 18 schools in this region are severely handicapped in their efforts to deliver educational and cultural services to their constituents. They are burdened by their size-limited resources and the geographic dispersion of both their people and their institutions. Coupled with this is a continuing decline in both enrollment and a tax base which diminishes the fiscal resources at their disposal. The traditional approach to solving this problem has been to share and consolidate their schools, a move which has met with constant local opposition.

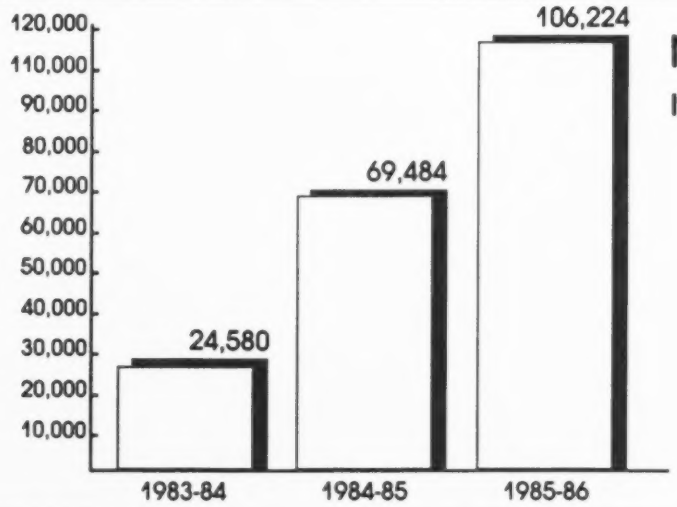
The tele-learning pilot project has been an attempt to determine to what extent modern technology can help small rural schools to improve and to strengthen education while at the same time providing equitable educational opportunities for these schools and their students, which in the past have been unavailable to them. This project employs a two-way computer-based technology which allows for the remote delivery of instruction.

The idea behind "tele-learning" is really quite simple. In this project, teacher and students at one location are connected by an AT&T Alliance teleconferencing "bridge" and telephone line to students at various other distant locations. The teacher can talk with the students and the students can talk with the teacher, or each other, using speaker phones. Through the use of an electronic graphic system consisting of a personal computer and a graphics tablet, they can write text, charts, and graphics much as they would on an ordinary classroom blackboard.

The network is established by a call initiated by the teacher to the conferencing "bridge." Following the simple recorded prompts, the teacher adds each location by dialing them one at a time. Once connected, the group can speak back and forth, creating an audio interaction and, via the electronic "blackboard," a visual interaction is established as well. This two-way interactive voice and graphic system works in real time and allows the student to listen, observe and respond much the same way as in a regular classroom.

The electronic blackboard, called the Optel Telewriter 11-PC, has many features. This system makes use of the microcomputer as part of its basic system. The tablet is a desk-top device that can easily be moved from student to student. The students gather around the computer with the tablet and speaker phone in front of them. Each participant can write on the tablet or type on the keyboard, and it shows up on all of the remote screens in the network simultaneously and instantaneously.

Additionally, the Telewriter makes use of the information storage abilities of the microcomputer. Pages or screens of information can be prepared by the teacher and stored on floppy diskettes. These diskettes are then duplicated and distributed to each of the schools, and their pages can be "called up" to the screens by the teacher from the keyboard. With these features the teacher can prepare visual materials much the same way a teacher in a more traditional setting makes use of an overhead projector or other visual support material.



Number of Microcomputers in New York State Schools

One final feature of the system is the modem. A modem is a device that takes the digital output of the computer and transforms it to an analog signal that can be sent over the phone lines. One standard telephone line delivers both the voice signal from the speaker phone and the electronic signal from the computer. This has important cost implications, for separate phone lines for voice and data are not required, thereby cutting the communications costs in half. Using this "highway" for administrative purposes, instruction and staff developments may provide additional cost savings as these other functions are addressed within the system.

'I would recommend it to other students because I really enjoyed it and I think they would too," says Steve McCoon of Sydney High School in Sydney, New York, who participated in the initial Astronomy pilot course which was offered in the spring of 1985. It was offered as a mini-course, meeting after school twice a week for eight weeks. The course went surprisingly well, with good student and teacher feedback. The teacher, who was skeptical at first, cited the effectiveness of the system in allowing him to communicate his subject area to the students.

Building on the success of the Astronomy class and with some additional funding provided by a special legislative grant, an advanced placement Calculus class was offered to students in five of the region's 18 member school districts of the region. "An unqualified success," says Denis Martin, project coordinator, of the experience for 13 high school seniors who would not have had the opportunity to take the course, had it not been for the project.

The AP Calculus course was taught to students in five schools by Thomas Tucker, a math professor at nearby Colgate University in Hamilton, New York. Of these five schools, only one offered AP Calculus last year, busing their students ten miles each way everyday to receive the class. From his home on campus, Professor Tucker taught the Calculus course one day a week for one hour, with a 30 minute "office hours" session later on in the week where students could discuss with Tucker any questions or problems they were having with the material.

The evaluation results were "surprisingly successful" according to Professor Tucker. "The challenge of teaching 13 students, many of whom had less than four years of high school mathematics, the Calculus syllabus in 30 meetings over the telephone sounds impossible, a kind of recipe for failure. Nevertheless, the class learned an awful lot of Calculus." Student feedback indicated that one class session per week wasn't enough time to grasp all of the subject material, but that the office hours session did help. Future plans call for the class to meet every other day (three days the first week, two days the second and so on), with point-to-point office hours remaining at once a week for one half hour.

In addition to the delivery of these distant classes, the project is also tackling the isolation of the rural schools by using the system for teleconferencing with other classes throughout the United States and beyond. Teleconferences, or "electronic field trips" as they have been referred to, have been held where students studying Mexico had an opportunity to speak with teachers and students in Monterrey. Another group of grade-school students studying Alaska discussed their findings with school children in Naotak.

According to project coordinator Martin, using audio graphics as a delivery system has two unique attributes which those who are considering distance learning may wish to consider. One is the relatively low start-up cost. The terminals at each location cost approximately $8,000.00. No expensive tower system needs to be built and the existing AT&T public switch network need only be tapped into by the participating schools. The other is the low risk of the system, because if the service is discontinued, the micro-computer, modem and other peripherals can be used for other administrative and/or instructional purposes.

As time has evolved, more schools are choosing to participate in the tele-learning project and are having more courses to choose from for one simple reason: it works. Students, teachers, administrators, and taxpayers are all thrilled with the many benefits associated with the audio-graphic teleconferencing network. The good word seems to be out in the Delaware-Chenango valley!

MICROWAVE TRANSMISSION

When we hear the word microwave, visions, perhaps, of ovens and other kitchen appliances loom in the mind's eye. We seldom think of microwave in terms of education or classroom programming. Yet these short electromagnetic waves have become the delivery system of choice in a number of distance learning projects that have evolved across the country. One of them, entitled Interactive Telecommunications System to Link Campuses, is presently operating on the two campuses of Houghton College — in Houghton, New York and 65 miles north to the Buffalo suburban campus in West Seneca, New York. In this area, phone line connections are expensive and cable connections don't exist because of the terrain.

Microwave is a broadcast medium which can carry thousands of voice channels and television programming without the use of a cable. It is similar to standard broadcast television except it transmits on a much higher frequency. Each tower in a microwave relay system picks up the signal, amplifies it, and retransmits it to the next tower in line with the destination point. Mi-

crowave is a "line of sight" medium. In other words, each relay tower must be placed so that it can "see" the next tower. Microwave antennas and transceivers are placed on these towers and are then combined with video cameras, microphones and monitors to provide a two-way communications link among those participating — in this case, the two Houghton campuses. At the originating school, a microphone and TV camera are directed toward the instructor to provide audio and video signals to the students in the remote school. In turn, a camera and microphone are used to provide return pictures and sound of the participating classes to the instructor. The microwave television system permits the instructor to visually and audibly interact with students at distant schools on a direct and personal level.

The interactive telecommunications system to link the two campuses of Houghton College was created in order to offer classes that could not otherwise be offered at both sites simultaneously. To provide this communication between Houghton's two campuses, the signal emanates from a building specifically prepared as the link classroom. From here the signal is carried by underground cable to the television production studio and then on to the highest elevation on the campus, where the signal is converted from video into microwave. The transmitter then broadcasts this signal from the microwave dish to a series of receiving microwave towers until finally an additional antenna carries the signal the last stretch of the way before it is re-converted into a video signal.

This microwave system is a two-way audio, two-way visual interactive broadcast system. In addition to the towers described, each campus has several classrooms equipped with television cameras, microphones, television monitors and projection screens connected via the broadcast system. The college employs one interactive television channel and six phone/voice lines for access to either campus and for transmission of written material. Consequently, the teacher who teaches the live class is heard and seen by, and interacts with, the remote class.

In addition to linking the two campuses for instructional purposes, Houghton has discovered other important benefits of the system. A major efficiency and fiscal benefit has been the telephone link where phone calls between the campuses are carried over the system. The college does not pay long distance rates for these calls because of two intercom lines installed within the system. This saving of over $2,000 each month is enough to cover the current operating costs of the entire system.

Additionally, the need for travel between the two campuses has been greatly reduced and also results in significant savings. Professors who previously traveled between the campuses have a lesser need to do so. College administration and staff are now able to conduct meetings without traveling to a common campus. Students have the opportunity to operate the production facilities associated with the link and have access to virtually all of the functions of the TV studio including special effects, character generation and time base correction. Finally, data is transmitted daily between the two campuses and faculty members are transmitting their tests from one campus to the other.

The benefits associated with the telecommunications microwave link have permitted the college many benefits, not the least of which has been an expanded number of courses not previously available. Beyond the initial "start-up" capital which came from a Title 3 Challenge Grant, the maintenance costs are minimal, rendering the program both practical and cost-effective. There appear to be few limits to broad applications of the system both instructionally — and beyond.

INSTRUCTIONAL TELEVISION FIXED SERVICES

Instructional Television Fixed Services (ITFS) is a closed circuit telecommunications broadcast system authorized by the Federal Communications Commission (FCC) to operate in the frequency spectrum of 2500 — 2690 megahertz (MHz). ITFS allows the transmission of video and audio signals via relatively low cost, low powered transmission equipment. ITFS systems can serve many schools over a single broad area of 10 miles or more, or link a series of distant isolated schools through a point-to-point relay system. Due to the nature of microwave, optical line of sight is required between transmitter and receivers.

A two-way instructional television system of this nature which transmits and receives broadcast signals has been provided for three schools within the jurisdiction of the St. Lawrence-Lewis BOCES. These three schools — Gouverneur Central School, Harrisville Central School and Edwards Central School — are equipped with a delivery system that provides for the sharing of classroom instructional services. Because of the distance and topography among the schools and the BOCES center in Canton, a repeater site was constructed at Balmat, New York to establish a direct line-of-site among all of the towers in the system. Additionally, the BOCES center provides an additional audio-visual link to the schools and is equipped with a data link capability on the subchannels of the microwave system which enable the center to transfer hard copy data among them and the outlying schools.

This program, called the Interactive Telecommunications Network, is patterned after a similar venture in the Morning Sun Community School District in — of all places -Morning Sun, Iowa! In an attempt to expand

the sharing of instructional services between their schools and, at the same time, aiming to maintain the integrity and identity of the three communities, representatives of these three schools, the BOCES, the teacher's union and the State Education Department came to Iowa back in 1983. Quite literally, what they saw was what they got. The system in place in the North Country is a virtual replication of the highly successful model in place in Iowa. Two years later, largely as a result of a special legislative grant of one-half million dollars, seven classes were being broadcast to students who could select courses ranging from elective Psychology transmitted from Edwards High School to Advanced Placement English transmitted at Gouverneur High School.

"I call this the 'great equalizer' because it enables schools to offer programs regardless of their size or financial means," says Gouverneur Superintendent Bettinger. "The schools retain their identity and their position in the community. We can now efficiently share our educational resources without physically consolidating." Others see this form of distance learning as the logical extension of centralizing schools to make more resources available to more students. Television waves instead of buses effectively and efficiently bring students together to take courses that otherwise would not be available to them. "If I were not able to take this course, I would not have the necessary requirements for graduation. This course has helped me gain that, as well as valuable experience for college," says Scott Reed, a student in the Advanced Placement English class taught by William Appleby out of the Gouverneur High School.

And how do the teachers feel about this "invasion" of television technology into their classrooms? "If somebody told me ten years ago that I would be doing this, I would have said they were crazy," says Deborah DeLuca, a teacher whose shorthand class is due to be offered again next year. "This has caused a great deal of professional and personal growth for me."

Ms. DeLuca and her colleagues played an active role in the selection, planning and implementation of the interactive telecommunications system chosen for the North Country. Teacher representatives were included in the trips to Iowa and saw firsthand the intent of the project: not a vehicle for the replacement of teachers, but rather a means by which schools breach the obstacles of distance and size-limited resources — and offer their students a viable academic program.

Does the system work? Are students learning as well as they would in a more traditional setting? Was the expenditure of time, effort and money worth the price? The results of a more formal evaluation by a team from Cornell University will have more to say about this when their studies are made available, but as of this writing, a more informal measure indicates that the students fared as well with this network as they do in the more traditional classroom setting. Test scores and other objective teacher data indicate that there was no significant difference in the scores of students participating or not participating in the project. Typically, those who participated — students and teachers alike — enjoyed the experience and saw their horizons expand. Students made new friends and generally benefited from the collective wisdom of the three schools operating together with a common purpose.

There were other benefits which enhanced the instructional opportunities and, in some cases, actually made them better. For example, it was easier for a student sitting in Ms. DeLuca's eighth row to see a string of shorthand symbols on the classroom's 25-inch monitor than peering over shoulders to the blackboard beyond.

Additionally, the system was used for parent and teacher conferencing, tutorial services and joint board meetings among the participating schools. "This is only the tip of the iceberg," says Superintendent Bettinger. "There are so many other possible benefits. Our future is bright." In a more immediate way, that future includes seven more courses this coming school year and a provision for facsimile and data links between the schools as well. Additionally, as cable and possibly optic fiber capacities wend their way through the State creating other networks, the Instructional Television Fixed Services system in place in the North Country is completely capable of linking into these capacities, thereby expanding their range of possibilities even further

SATELLITE TRANSMISSION

Satellites are one of a growing number of communications links which schools are tapping for supporting the delivery of instruction. The satellite receives microwave signals from the earth at a given frequency from a capacity called an "uplink" dish. These dishes, which are licensed by the Federal Communications Commission, send signals that are transmitted back to the earth at a different frequency to a relatively inexpensive receive capacity called a "downlink" dish, which are currently unlicensed and can be owned by the general public. Satellites are placed in a geostationary orbit above the equator, moving at a speed which matches the earth's rotation. Thus, the satellite appears to be stationary over a particular point on the earth.

The Texas Education Agency is currently working in partnership with the Ti-In Network, Inc. to provide distance learning courses and staff development opportunities via satellite to more than 100 subscribing school districts and other educational agencies in

Texas and five other states. This number is expected to grow to 230 subscribers in 16 states by December 1986.

What is the Ti-In Network and how does it serve the needs of subscribing school districts and students? Ti-In is a live, interactive instructional television network which provides high school credit courses, basic skills tutorials, student enrichment courses and in-service training/staff development programming for teachers. Beginning in the fall of 1986, they will be offering college credit courses, as well.

This past year thirteen high school courses were offered including Calculus, Honors English, Latin, Computer Science, Basic Skills, U.S. Government and Spanish. These courses are taught by certified master teachers in each subject who deliver their courses from studios located in San Antonio. Each subscribing school has at its site (1) a "downlink" dish to receive the signal from the satellite, (2) a television monitor for the students to see the teacher and view the lesson, and (3) a telephone call-back system for instantaneous feedback to the instructor. Another feature of the system is a videotaping capability. This insures that a student who misses a class need not miss a lesson.

Subscriber schools have considerable input as to the courses offered through the course of the academic year. All courses scheduled on Ti-In are done directly in response to the needs expressed by the network subscribers through a routine survey process. There is also a program advisory committee meeting every month where subscribing schools discuss their concerns relating to programming, such as scheduling conflicts. These meetings are held on the television just as the courses are broadcast.

The Ti-In network provides programming via the GTE SPACENET II domestic satellite. The instructional programs are originated and transmitted (uplinked) from the studio facilities in San Antonio. Here, the satellite broadcasts these signals over the entire continental United States, where they are received by "downlink" dishes located on the premises of those who subscribe to the network. Representatives of the State Education Department have had preliminary meetings with Ti-In officers as part of an on-going process of learning about all of the technological alternatives from which to choose.

A given Ti-In receive site can serve more than one end user and frequently serves the local community adult population. One Ti-In receive site was installed in a remote West Texas mountain community to serve a quadraplegic student of high school age. There is a recognized need for providing access to learning opportunities for students with this and similar disabilities. Ti-In's services are an example of how technology can meet the growing needs of a society whose citizens are not always in the right place at the right time under the right circumstances.

Perhaps the most unique aspect of the Ti-In Network is the inherent nature of a system such as this for nationwide sharing of academic resources. Quality educational resources in various geographic regions can be shared nationwide to teach courses where qualified subject area teachers are scarce.

Beyond Texas, satellite transmitted instruction is being used in a number of locations throughout the country. Not surprisingly, Alaska was one of the first to experiment with telecommunications technology in delivering courses and it was satellite technology that won out over a number of competing alternatives. Being the largest state in the union, Alaska's rugged terrain and sparse population have kept the State's development slow and primitive.

The LEARN/Alaska Instructional Television Network was started in 1981. Through the use of the Aurora satellite, educational programming is available for nearly every Alaskan. Specifically, the network provides classes and instructional support for students in kindergarten through college, administrative teleconferencing, staff development and training, electronic mail, and a means for the exchange and sharing of information among such groups as health technicians and farmers—a significant "highway" indeed with many travelers!

Back in the continental United States in Stillwater, Oklahoma, is a new $3.5 million telecommunications center on the campus of Oklahoma State University. This facility has been employed to deliver satellite-transmitted German classes to public schools faced with a new requirement which, for the first time, requires students in Oklahoma to show evidence of successful completion of two years of a single foreign language. A number of school districts in the State are not able to offer these courses because they simply do not have the manpower or funds available.

This project utilizes the latest in satellite technology and computer-assisted instruction to provide authentic German language instruction to many of these school districts. OSU has a 10-meter "uplink" dish which provides the technical capability to send programs originating from the Stillwater campus to a statewide or national audience. Using a combination of recordings of foreign programs and television commercials, textbook work, and classroom grammar exercises, the college has created, through satellite-broadcast, a foreign language/culture package where television provides a window on the German culture as well as its language.

Two days a week the students in these schools watch satellite delivered programming on television. During the remaining three days, a telephone conference

call connects the students with the instructor. Through an audio bridge which provides two-way communication, students may ask questions and the instructor is able to present and clarify material. This "voice based learning system" incorporates cassette tapes used with Apple computers and a voice recognition module. Students speak into the computer and it lets them know if words have been pronounced correctly. The cassette control device which actuates the voice also gives the students a visual textual display on the monitor. Consequently, students receive instant feedback from the system concerning their progress. Additionally, an electronic mailbox system provides the students, language coordinators and school administrators 24-hour-a-day access to the instructor.

Utah's Distance Accelerated Learning Program (DALP) has as its objectives a quality educational experience providing parity for both rural and urban Utah students. Its intention is to significantly increase educational productivity and develop a process for using advanced education and communication technology effectively.

DALP was originally developed for secondary students of Spanish in both the junior and senior high schools in the state of Utah. The project's initial success prompted developers from the commercial sector as well as the Utah Department of Education to promote the program beyond the state's boundaries. A combination of microcomputers, satellite and telephone/videotape technologies are employed to deliver instruction to students situated in classrooms supervised by trained "classroom managers."

The entire package includes a combination of 80 televised programs and 80 computer enrichment segments which are in support of the televised instruction. Also included are computer assisted student tracking modules and elaboration activities which include enrichment materials, classroom posters, and a student workbook/teacher guide series.

Closer to home in New York, several schools in the State have installed satellite dishes. These school systems are working together to explore the possible utilization of available satellite delivered programming within their educational settings. The main issues they are currently exploring are access to information on available programming, permission to receive the programming, and the relationship between the programming and the curriculum in the educational community.

However, with the installation of 10-15 foot diameter mesh dishes, these schools have created for themselves the potential to create a limitless source of instructional opportunities. In addition to the massive quantity of available programming, down-link dishes provide the means by which a school district may tap into already existing satellite-delivered distance learning programs, such as the projects described previously. Satellite subscribers were able to effectively follow the NASA channel and its Young Astronauts Program, including complete coverage of the Teacher in Space shuttle launch. Christa McCauliffe's two-day lesson from space was to have been the ultimate "field trip/distance learning" lesson all rolled into one — and New York's down-linked schools would have been there with full satellite coverage to receive it.

There are other creative applications of satellite-beamed transmissions into our schools. The Canadian Broadcasting Company has been transmitting the parliamentary procedures of the Canadian Parliament and uplinking these broadcasts to the ANIK satellite. One of the directives of the Regents' Action Plan with regards to foreign language instruction is to provide the means by which children may receive authentic language experience. The procedures and debates, ingredients of all legislative bodies, are held in both English and French, and provide limitless opportunities and applications for courses in both French and the social studies.

The New York State Education Department has responded to this need by holding discussions and securing an agreement with the Canadian Broadcasting Corporation for all of New York State's educational and cultural institutions, to receive the Canadian parliamentary House of Commons proceedings via satellite. This broadcast potential significantly increases the instructional choices which social studies and foreign language teachers have for addressing curriculum requirements and innovative approaches to teaching. In accordance with the Fair Use Guidelines mentioned earlier, the agreement also permits video duplication of these televised proceedings for later use.

Satellite delivery of instruction in New York State is in its infancy, as it is in other parts of the country, as well. As our creativity is unleashed and programming information becomes more available, more kinds of learning opportunities will surface. The installation of an uplink satellite dish would allow for all kinds of locally originated programs, lessons and teleconferences to be transmitted to an increasing number of receiver sites. School nurses unable to attend a statewide conference of the nursing association, for example, would be able to tune in to a timely keynote address on Aids and not have to go anywhere to do it.

Satellite is a versatile delivery system that will literally open up the universe to the classroom. That classroom — be it your school or your home, your bank or your broker — will eventually both inform and empower us, and create possibilities for lifelong learning on a dimension never before imagined.

To Summarize

The implications for distance learning extend well beyond the parameters of what has been discussed in this chapter. While the needs of our State's elementary and secondary schools are a major focus of the interactive technologies, distance learning is intended to provide equitable learning opportunities for all of our State's citizens. Distance learning has the capacity to serve a number of audiences and special needs, with the potential for addressing a wide range of difficult problems faced across the entire lifelong learning continuum. Instructional networks can provide homebound instruction for the disabled, offer cooperative staff development opportunities, increase community participation and enhance both postsecondary instruction and the relationship between K-12 and postsecondary institutions.

Additionally, distance learning has proved to be a promising technological application for addressing adult literacy, job training and retraining for the displaced worker. The Regents Advisory Council on Learning Technologies has recommended legislation that will enhance the use of distance learning by providing funds for the development and application of learning technologies for adult literacy.

Much is being done at the State level to continue and develop comprehensive legislation for planning and implementing distance learning networks across the State. The competitive grant project funded under the Technologies Network Ties program is an example of recent efforts to support distance learning initiatives. The State Education Department will include in its 1987-88 Regents legislative package six million dollars over five years to support distance learning planning, technical assistance, feasibility studies and project start-up.

Distance learning is a versatile medium for delivering instructional opportunities to a wide range of audiences. Technology has created possibilities for learning that literally have no boundaries. An expanded awareness on the part of educational practitioners and public policy makers is critical if these opportunities are to become a part of the educational reality of our State's learners.

CONCLUSION

As one reflects on the thoughts and messages of these pages, it becomes clear that video, as it relates to learning, is a developing and exciting process. Its evolution in society is parallelled by positive and innovative applications in education, where educators are using video to support and enhance instruction, as well as deliver it. As our awareness has expanded, so have our options; networks of educators applying these visual technologies continue to form and unfold throughout the State and beyond.

We have considered three different and distinct applications of video in the educational setting. Initially, we looked at how instructional television has become a significant part of an increasing number of classrooms throughout the State, thanks in large part to the advent of affordable videocassette recorders. We saw how the public and commercial networks, along with the ever-expanding world of cable television, provide the teacher with a wide array of programming choices for the classroom. Additionally, vast storage of videotapes exists in the local BOCES and public libraries, along with the constantly increasing inventory of the Center for Learning Technologies. Teachers using these resources constitute a growing network of

media-conscious educators — all working in highly creative and innovative ways.

This consideration of the more conventional use of television in an educational setting led to our discussion of video production and a new world of video applications for instructional purposes. We learned about a process that has as its purpose, not so much the production of a slick, quality product, but rather, the intention of affording students an opportunity to learn by doing—using content, basic and higher order thinking skills, and aesthetic self-expression in producing their own projects. We have seen how the video camera and cassette recorder have created opportunities for cooperative learning. Suddenly, teachers and students alike are becoming video producers duplicating and even exceeding the imaginative efforts of more commercially-oriented practitioners. Just as importantly, we have seen how the process is a practical, relevant and enjoyable learning experience that has as a byproduct an increased awareness of media — and television in particular.

Finally, we learned about the emergence of distance learning and the implications that it has for educators and learners. We have learned about the various existent and emerging capacities that are being

employed to deliver a wide range of educational services, and about the need for a responsible and thorough approach to planning and implementing a local instructional network. Most significant, perhaps, are the implications which distance learning has for education beyond the traditional classroom. A diversity of administrative and instructional applications exist which will greatly enhance our ability to create a lifelong learning society. The same technologies which enable a severely disabled student to communicate with a voice synthesizer will also permit teachers to be inserviced; administrative data to be recorded and consistent educational programs to be tailored for migrant workers' children. Distance learning can support these and innumerable other educational services equitably and cost effectively.

This diversity of applications lends purpose to the legislative initiatives currently underway to support and to expand local efforts to further open the doors of electronic learning and communication. The Center for Learning Technologies is actively involved in exploring and promoting effective applications of the visual technologies as they relate to learning in New York and beyond. The Center, for example, in cooperation with the Teacher Resource and Computer Training Centers, is providing video production workshops for educators interested in learning how to incorporate these processes into their schools and classrooms. The Center also monitors distance learning projects as they emerge statewide and throughout the country, using the data and information to support legislative efforts. These efforts, and others by the Center, form part of the Center's role in developing strategic approaches for new technologies in support of education.

These efforts have as their goal the highest possible degree of educational quality and opportunity for all of New York State's learners regardless of age, status or location. At our collective fingertips lies the opportunity to harness the full educational power of the visual technologies and apply them equitably so that all who wish to learn will have the opportunity to do so. The future is exciting, limited only by the imagination of our leaders and policymakers, including teachers, who can now share in the emerging Age of Information.

APPENDICES

APPENDIX A
Some independent public and private television producers and distributors

Access Network
Calgary, Alberta, Canada
(403) 256-1100

Agency for Instructional Television
Box A
Bloomington, Indiana 47402

AIMS Media
6901 Woodley Avenue
Van Nuys, California 91406-4878
(800) 367-2467
in California, Alaska, Hawaii,
call collect: (818) 785-4111

Centre Productions
1800 30th Street, # 208
Boulder, Colorado 80301

Children's Television International
Three Skyline Pl. St.
5201 Leesburg Pike
Falls Church, Virginia 22041

Children's Television Workshop
1 Lincoln Plaza
New York, NY
(212) 595-3456

COE Films Associates
65 East 96th Street
New York, NY
(212) 831-5355

Coronet/Perspective Films
65 East South Water Street
Chicago, Illinois 60601

Educational Program Service
2628 Millwood Ave.
Columbia, South Carolina
(803) 799-6930

Encyclopaedia Britannica Educational Corporation
425 North Michigan Avenue
Chicago, Illinois 60611
(312) 321-6800

Films, Inc.
1144 Wilmette Avenue
Wilmette, Illinois 60091
(312) 256-4730

Great Plains National Instructional Television Library (GPN)
P.O. Box 80669
Lincoln, Nebraska 68501
(800) 228-4630

Journal Films
930 Pitner Avenue
Evanston, Illinois 60202

Kids and Co.
401 Bedford Drive
Richardson, Texas
(214) 699-7463

Media Action Research Center
475 Riverside Drive
New York, NY
(212) 865-6690, (212) 663-8900

Pacific Mountain Network
12596 West Bayaud
Lakewood, Colorado
(303) 980-1411

Phil Lucas Productions
180 North East Juniper
Issaquah, Washington
(206) 392-9482

Phoenix/BFA Films and Video
468 Park Avenue South
New York, NY 10016

SIRS Inc.
1100 Holland Drive
Boca Raton, Florida
(305) 994-0079

TV Ontario
730 Airport Road
Chapel Hill, North Carolina
(919) 967-8004

APPENDIX B
Off-Air Recording Rights

The following guidelines govern off-air recording of television programs. In general, the guidelines authorize nonprofit educational institutions to record television programs off-the-air for instructional use and to use the program in the classroom for 10 school days. The tape may be retained for 45 calender days in total, but beyond the first 10 school days it may be used for teaching evaluation only and not for student use. These principles are, however, subject to limitations. The text of the off-air guidelines adopted by an industry-wide negotiating committee appointed by Congressman Robert Kastenmeier's subcommittee on courts, civil liberties, and administration follow:

1. The guidelines were developed to apply only to off-air recording by nonprofit educational institutions.
2. A broadcast program may be recorded off-air simultaneously with broadcast transmission (including simultaneous cable retransmission) and retained by a nonprofit educational institution for a period not to exceed the first forty-five (45) consecutive calender days after date of recording. Upon conclusion of such retention period, all off-air recordings must be erased or destroyed immediately. "Broadcast programs" are television programs transmitted by television stations for reception by the general public without charge.
3. Off-air recording may be used once by individual teachers in the course of relevant teaching activities, and repeated once only when instructional reinforcement is necessary, in classrooms and similar places devoted to instruction within a single building, cluster or campus, as well as in the homes of students receiving formalized home instruction, during the first ten (10) consecutive school days in the forty-five (45) calender day retention period. "School days" are school session days—not counting weekends, holidays, vacations, examination periods, or other scheduled interruptions—within the forty-five (45) calender day retention period.
4. Off-air recordings may be made only at the request of and used by individual teachers, and may not be regularly recorded in anticipation of requests. No broadcast program may be recorded off-air more than once at the request of the same teacher, regardless of the number of times the program may be broadcast.
5. A limited number of copies may be reproduced from each off-air recording to meet the legitimate needs of teachers under these guidelines. Each such additional copy shall be subject to all provisions governing the original recording.
6. After the first ten (10) consecutive school days, off-air recordings may be used up to the end of the forty-five (45) calender day retention period only for teacher evaluation purposes, i.e., to determine whether or not to include the broadcast program in the teaching curriculum, and may not be used in the recording institution for student exhibition or any other nonevaluation purpose without authorization.
7. Off-air recordings need not be used in their entirety, but the recorded programs may not be altered from their original content. Off-air recordings may not be physically or electronically combined or merged to constitute teacher anthologies or compilations.
8. All copies of off-air recordings must include the copyright notice on the broadcast program as recorded.
9. Educational institutions are expected to establish appropriate control procedures to maintain the integrity of these guidelines.

These guidelines apply for taping off-the-air of "broadcast programs," previously defined as "television programs transmitted by television stations for reception by the general public without a charge." This definition doesn't address the guidelines for cable television . Taping a program off of cable television is permitted if the program is a retransmission, or if cable is the only redistribution method available in your community. However, taping off of pay television stations is prohibited.

APPENDIX C

New York State BOCES Educational Communications Directors

Zebulon S. Robbins, Jr., Dir.
ALBANY-SCHOHARIE-SCHENECTADY BOCES
Ed. Comm. Services Division
1015 Watervliet-Shaker Road
Albany, NY 12205
(518) 456-9295

Rodney Van Housen, Dir.
BROOME-DELAWARE-TIOGA BOCES
3301 Country Club Road
Endwell, NY 13760
(607) 757-9191 or 9192

Lyn Griffiths, Dir.
Instructional Services
CATTARAUGUS-ALLEGANY BOCES
Box 424B Windfall Road
Olean, NY 14760
(716) 372-8293

Ed Gomes, Dir.
CAYUGA-ONONDAGA BOCES
Ed. Comm. Center
234 South Street Road
Auburn, NY 13021
(315) 253-0361

Kenneth Wasmund, Dir.
CHAUTAUQUA COUNTY BOCES
Ed. Comm. Division
9520 Fredonia-Stockton Road
Fredonia, NY 14063
(716) 672-4371 or 672-4015

Harvey Davey
CLINTON-ESSEX-WARREN-
WASHINGTON BOCES
Ed. Comm. Center
P.O. Box 455
Plattsburgh, NY 12901
(518) 561-0103

Robert E. Taylor, Dir.
DELAWARE-CHENANGO BOCES
Ed. Comm. & Technology Division
R.D. #3 East River Road
Norwich, NY 13815
(607) 334-2771

Kenneth Kahn, Coordinator
DUTCHESS COUNTY BOCES
Curriculum Center
R.D. #1 Salt Point Turnpike
Poughkeepsie, NY 12601
(914) 471-3709

Norman W. Johnson, Ass't. Dir.
ERIE #1 BOCES
Instructional Services
2 Pleasant Avenue West
Lancaster, NY 14086
(716) 686-2066

Thomas Assenza, Dir.
ERIE-CATTARAUGUS BOCES #2
3340 Baker Road
Orchard Park, NY 14127
(716) 662-1235

Robert W. Kovac, Dir.
GENESEE-WYOMING BOCES
Ed. Comm. Center'8520 State Street Road
Batavia, NY 14020
(716) 343-1400, ext. 265 or 266

Kimberly Viscussi, Dir.
HAMILTON-FULTON-MONTGOMERY BOCES
Ed. Comm. Center
FMCC Campus, Route 67
Johnstown, NY 12095
(518) 762-7411

Charles R. Schrieber, Dir.
HERKIMER COUNTY
Ed. Comm. Center
Gros Boulevard
Herkimer, NY 13350
(315) 867-2000

Eric Plotnick, Dir.
JEFFERSON-LEWIS-HAMILTON-
HERKIMER-ONEIDA BOCES
Ed. Comm. Center
Route 12
Glenfield, NY 13343
(315) 376-6501

Charles F. Sixour, Dir.
LIVINGSTON-STEUBEN-WYOMING BOCES
Ed. Comm. Center
Lackawanna Avenue
Mt. Morris, NY 14510
(716) 658-3356

Helene Mellon, Admin. Ass't.
to Dist. Supt. for Ed. Devel.
MADISON-ONEIDA BOCES
Center for Instructional Support
Spring Road
Verona, NY 13478
(315) 363-8000

Gerald Cummings, Dir.
MONROE #1 BOCES
Ed. Comm. & Tech. Center
2596 Baird Road
Penfield, NY 14526
(716) 381-9498 or 9523

Peter Madsen, Dir.
MONROE #2 — ORLEANS BOCES
Ed. Comm. Center
3599 Big Ridge Road
Spencerport, NY 14559
(716) 352-2430

Paul Neff, Dir.
NASSAU COUNTY BOCES
Film Library
234 Glen Cove Road
Carle Place, NY 11514
(516) 877-1910, ext. 200

Joseph P. Price, Dir.
ONEIDA COUNTY BOCES
Ed. Comm. Center
P.O. Box 70
Middle Settlement Road
New Hartford, NY 13413
(315) 786-4574

Anthony Mollica, Dir.
ONONDAGA-CORTLAND-MADISON BOCES
Center for Educational Development
Box 4754
Syracuse, NY 13211
(315) 433-2643

Peter S. Sulzbach, Dir.
ORANGE-ULSTER BOCES
Instructional Communications Center
R.D. #2 Gibson Road
Goshen, NY 10924
(914) 294-5431, ext. 262

Douglas David, Supervisor
ORLEANS-NIAGARA BOCES
Instructional Services
P.O. Box 299-D; Niagara West
3181 Saunders Settlement Road
Sanborn, NY 14132
(716) 731-4176

Patricia Mautina, Dir.
OSWEGO BOCES
Curriculum Resource Center
Mexico, NY 13114
(315) 963-7251

Rodger Oesterle, Dir.
OTSEGO-NORTHERN CATSKILL BOCES
Rural Supplementary Ed. Center
Cyr Center, Rexmere Park
Stamford, NY 12167

(607) 652-7531
George J. Morrison, Coordinator
PUTNAM-NORTHERN WESTCHESTER BOCES
Ed. Comm. Center
School Services Building
Yorktown Heights, NY 10598
(914) 245-2700

Roy H. Meuchner, Dir.
RENSSELAER-COLUMBIA-GREENE BOCES
Center for Instructional Support Services
1588 Schuurman Road
Castleton, NY 12033
(518) 477-8771

Joseph J. Gibson, Dir.
ROCKLAND COUNTY BOCES
Tappan Zee Facility
Route 9W
Piermont, NY 10968
(914) 365-1450

Elizabeth Durocher, Dir.
SAINT LAWRENCE-LEWIS COUNTY BOCES
Learning Resource Center
P.O. Box 310
Norwood, NY 13668
(315) 353-6693

Albert Clarke, Dir.
SARATOGA-WARREN BOCES
Ed. Comm. Center
Henning Road
Saratoga Springs, NY 12866
(518) 584-3239, ext.230

Joseph R. Hill, Dir.
SCHUYLER-CHEMUNG-TIOGA BOCES
Instructional Support Center
431 Philo Road
Elmira, NY 14903
(607) 739-3581

Donna Barkman, Coordinator
SOTHERN WESTCHESTER BOCES
Ed. Comm. Services
Concord Road
Ardsley, NY 10501
(914) 693-7576

Dr. Betty Lou Nixon
STEUBEN-ALLEGANY BOCES
Ed. #1
Bath, NY 14810
(607) 776-7631

Edwin Peterson, Dir.
SUFFOLK #1 BOCES
215 Old Riverhead Road
Westhampton Beach, NY 19978
(516) 288-6400

Richard Arata, Coordinator
SUFFOLK #2 BOCES
Ed. Comm. Center
201 Sunrise Highway
Patchogue, NY
(516) 277-7405

Roger W. Hill, Jr., Dir.
SUFFOLK #3 BOCES
Comm., Media & Tech. Center
c/o Long Acres School
Sarina Drive
Commack, NY 11725
(516) 543-0855

Edward W. Moy, Dir.
TOMPKINS-SENECA-TIOGA BOCES
Ed. Comm. Center
555 South Warren Road
Ithaca, NY 14850
(607) 257-1551

George Fernandez, Dir.
ULSTER COUNTY BOCES
Instructional Services
175 Route 32 North
New Paltz, NY 12561
(914) 255-1402

Ed Langton
ULSTER COUNTY BOCES FILM LIBRARY
c/o Crown Street Admin. Building
Kingston School District
Kingston, NY 12401
(914) 338-8953

Erik M. Jager, Dir.
WASHINGTON-WARREN-
HAMILTON-ESSEX BOCES
Media Center
10 La Crosse Street
Hudson Falls, NY 12839
(518)793-7721

Paul M. Steckel, Dir.
WAYNE-FINGER LAKES BOCES
Ed. Comm. Center
3501 County Road 20
Stanley, NY 14561
(716) 526-6400

APPENDIX D

Distance learning projects being funded by Technologies Network Ties program: FALL 1986

Implementation Grants

ERIE I BOCES
Superintendent — Dr. Robert Loretan
Title — Distance Learning Project in Western New York
Contact — Gary C. Johnsen
2 Pleasant Ave. West
Lancaster, N.Y. 14086
(716) 686-2088

ISLIP UNION FREE SCHOOL DISTRICT, 2
Superintendent — Dr. Ray V. Kwak
Title — Computer Conferencing for High School Courses
Contact — Dr. Gerald Coates
215 Main Street
Islip, N.Y.
(516) 581-2560

STEUBEN-ALLEGANY BOCES
Superintendent — Rene' L. Bouchard
Title — Long Distance Teaching
Contact — Dr. Betty Lou Nixon
R.D. # 1
Bath, N.Y. 14810

RENSSELAER-COLUMBIA-GREENE BOCES
Superintendent — John E. Sackett
Title — Interactive Instructional Project
Contact — Lawrence McGoldrick
1550 Schuuman Road
Castleton, N.Y. 12033
(518) 477-8771

Planning Grants

BROOME-DELAWARE-TIOGA BOCES
Superintendent — Dr. Leslie F. Distin
Title — Regional Communications Network
Contact — Mr.James E. Moody
421 Upper Glenwood Road
Binghamton, N.Y. 13905-1699

ORLEANS-NIAGARA BOCES
Superintendent — Dr. Duane E. Hutton
Contact — Dr. Douglas A. David
Charlotteville & Transit Roads
Newfane, N.Y. 14108
(718) 778-7752

PUTNAM NORTHERN WESTCHESTER BOCES
Superintendent — Dr. John J. Battles
Title — The Cooperative/Interactive Distance Education Planning Project
Contact — Chris Morton
Putnam/Northern Westchester BOCES
Yorktown Heights, N.Y. 10598
(914) 245-2700 Ext. 287/288

WARSAW, PERRY AND LETCHWORTH CENTRAL SCHOOLS
Superintendent — Dr. Per Omland/ Mr. Michael Wesner
Title — OATS-GEMINI Telecommunications 11 (Opportunities and Affordability Through Sharing — Gemini Telecommunications 11)
Contact — Dr. Per Omland
Perry Central Schools
59 Leicester Road
Perry, N.Y. 14530
(716) 237-6156

SOUTHERN WESTCHESTER BOCES
Superintendent — Dr. Richard Lerer
Title — An Interactive Educational Telecommunications System for Southern Westchester Schools
Contact — Dr. Abigal Hughes
Instructional Services Division
BOCES Southern Westchester
Concord Road
Ardsley, New York 10502
(914) 693-7576

APPENDIX E

Operable Distance Learning Projects

1. Title: Educational Telecommunications in Small Rural Schools.

   Primary Institution:

   Delaware-Chenango BOCES
   Chenango Center
   R.D. 3, East River Road
   Norwich, NY 13815

   Contact:

   Betty Wazaluk
   Project Coordinator
   (607) 336-6514

   This project employs both interactive voice and PC-based graphics. Networking occurs via the Alliance Teleconferencing service with terminal equipment that includes an IBM PC based OPTel Telewriter II-PC. This network provides for 2-way voice and graphics in real time interactive mode utilizing the PC-based features. The curriculum content covered by the system includes Astronomy for grades 9-12, and AP Calculus.

2. Title: Gemini Telecommunications Network-'3-1-3 Program (SUNY at Brockport)'

   Primary Institution:

   Warsaw Central School
   Warsaw, NY 14569

   Contact:

   Paul M. Seversky
   Superintendent
   (716) 786-2932
   Richard L. Greene
   Principal
   (716) 786-2272

   This project employs the AT&T Gemini Electronic Blackboard and the Quorum teleconferencing system. The curriculum content covered by the system includes the 3-1-3 program, where students finish high school in three years, take one year of college while they're in their first year of high school, and finish a bachelor's degree in three years on a college campus. The system also covers several courses given to only seniors including Economics, Calculus I&II, American Political Systems, and College English.

3. Title: "Interactive Television Cable Project"

   Primary Institution:

   Pleasantville Union Free S.D.

   Contact:

   Frank Gray
   Superintendent of Schools
   (914) 769-1522
   Michael Kolesar
   Media Coordinator
   (914) 769-8102

   All of the sites in this project are interconnected with monitors, cameras, and microphones which are installed in selected classrooms by American Cable Systems. A Latin class along with a variety of AP courses for the 11th and 12th grades are covered.

4. Title: "Interactive Telecommunications Network"

   Primary Institution:

   St. Lawrence-Lewis BOCES
   P.O. Box 231
   Outer State Street
   Canton, NY 13617

   Contact:

   Dr. William Hart
   District Superint.
   (315) 386-4505
   Richard C. Callan
   Asst. Superint.
   (315) 386-4504

   This project employs ITFS, which includes two-way audio and two-way video microwave signals that are transmitted to four different sites each containing cameras, multiple monitors, and microphones. The curriculum content covered by this system includes Health, Shorthand, Psychology, Sociology, Latin II, AP English, English II Non-Regents, and Business Law.

5. Title: "Interactive Telecommunications System to Link Campuses"

Primary Institution:

Houghton College
Houghton Campus
Houghton, NY 14744

Buffalo Suburban Campus
910 Union Road
West Seneca, NY 14224

Contact:

Dr. Willis Beardsley
Registrar
(716) 567-2211

Debbie White
P.R. Director
(716) 674-6363

James Barnes
Academic Dean
(716) 567-2211

At each campus, there are several classrooms equipped with TV cameras, microphones, TV monitors and projection screens. The classrooms are connected via a two-way, interactive microwave broadcast system. The college utilizes an interactive TV channel along with several voice and intercom lines for transmission and access of written and computer materials by each campus. The curriculum content areas covered by the system include postsecondary courses in religion, sociology, drama, German, early education, and Human Services.

6. Title: Appleworks

Primary Institution:

Monroe BOCES
Ed Comm and Tech Center
2596 Baird Road
Penfield, NY 14526

Contact:

Jerry Cummings
Director, Instructional Computing Center
2596 Baird Road
Penfield, NY 14526
(716) 381-9498

This project employs a modified cable system which reaches 4 out of 10 communities through a local public access channel and one microwave tower. The curriculum content areas addressed by the program include Appleworks, which provides instructional computer skills to teachers and interested community residents. The next course this program will offer is LOTUS 1-2-3.

Distance Learning Projects-Planning

1. Title: Telecommunications Planning/Interactive Television

Primary Institution:

Dutchess County BOCES
R.D. # 1 Salt Point Turnpike
Poughkeepsie, NY 12601

Contact:

Wayne Mengel
(914) 471-9200

Samuel M. Tulley, Ph.D.
Engineering Consultant
Fayette County Board of Ed.
Fayetteville, NY 25840
(304) 574-1176

The proposed technology that will be employed in this project is the use of cable technology which will be supplied by the local cable company. The Curriculum content area that will be addressed isn't known yet.

2. Title: Network for Instructional Television

Primary Institution:

BOCES of Nassau County
Salisbury Center
Valentines Rd. and The Plains Rd.
Westbury, NY 11590

Contact:

Dominick J. Mupo
Asst. Superintendent
(516) 877-1190

Paul G. Neff
Mgr., Ed. Comm. Center
(516) 877-1910

Instructional Television Fixed Services (ITFS) and satellite dish technology will be employed by this project. The curriculum content areas addressed in the program are all curricula, grade levels, and educational services that can potentially be addressed through BOCES-originated programming or satellite-received educational/commercial programming. The only limits placed on the project concern the quality, appropriateness, and resources for acquiring rights and/or for producing original programming.

3. Title: Telecommunications (Rockville School)

Primary Institution:

Rockville Central Schools
Administration Building
Sheperd Street
Rockville Centre, NY 11570

Contact:

Michael Abresch
(516) 255-8925

This project will employ the local cable company to connect all of the participating schools for the transmission and reception of programming and data between them. The administration building was wired with additional capacity to transmit the programming and data to community homes that subscribe to the cable company. The curriculum area to be addressed by this program hasn't been identified yet.

4. Title: Rockland County Educational Television Network

Primary Institution:

Rockland County BOCES
61 Parrott Road
West Nyack, NY 10994

Contact:

Robin Wilkins
Asst. to Superintendent
(914) 623-3828

Judy Umlas
WNYC-TV Dir. of leased time programming, and compliance officer, AM, FM, TV
424 White Oak Road
Palisades, NY 10964
(914) 359-2150

Candice Conley
Conley and Associates
784 Colonial Avenue
Pelham Manor, NY 10803
(914) 738-0196

This project will utilize a cable broadcasting system that includes a broadcast/reception facility located in each district. The curriculum areas that will be addressed in the project are Latin, various AP courses, and several foreign language courses.

5. Title: "Teaching via Television (TVT)"

Primary Institution:

Sole Supervisory District
Chautauqua County BOCES
9520 Fredonia-Stockton Road
Fredonia, NY 14063

Contact:

Kenneth M. Wasmund, Director
Education Technology and Communication
Gwen Papania, Administrative Assistant
(716) 672-4371

Interactive teaching using television with two-way video and two-way audio will be the technology employed by this project. The curriculum content areas addressed in the project will be 9th grade science, 12th grade health, and 8th grade home economics.

6. Title: Revising: Networking on Composition Instruction'

Primary Institution:

Breadloaf School of English
Middlebury College
Middlebury, Vermont 05753
(802) 388-7946

Contact:

Terry Tiernan
Route # 1
Madrid, NY 13660
(315) 322-8946 (home)

A computer/modem/telephone line link will connect the high school to the college where Apple computers will be hooked up to the college's mainframe computer.

7. Title: Telecommunications Network for the delivery of instructional programs and administrative data processing.

Primary Institution:

Rensselaer-Columbia-Greene BOCES
1550 Schuurman Road
Castleton, NY 12033

Contact:

Ann Meyers
Deputy Superintendent
(518) 477-8771

Wayne Gearing
Learning Technology Specialist
(518) 477-8771

Larry McGoldrick
Director, Gen. Educ. Programs
(518) 477-8771

This project will use point-to-point microwave with a dedicated path to connect all of the schools participating in the network. The program will offer courses in gifted and talented education, math, language arts, science, and writing. Other areas being addressed include K-12 (drill and practice, tutorial programs), adult education, and SAT preparation.

8. Title: "Long Island Network/Nassau: Suffolk 1-2-3"

Primary Institution(s):

Suffolk I BOCES
215 Old Riverhead Road
Westhampton Beach, NY 11978

Contact:

Dr. Gerald P. LaMantia
(516) 288-6400

Dan Whalen, Consultant
NYS Network
Alfred E. Smith Building
Albany, NY
(518) 474-8258
(HOME)
300 Darby Hill Road
Delanson, NY 12053

This program will employ cable technology with access to at least one channel. The curriculum areas covered by the project will include a variety of AP and staff development programs.

GLOSSARY

AC — Alternating Current, electrical power from an outlet or plug.

AMPLIFIER — An electric device for increasing an audio or video signal.

ANALOG — A form of data transmission between one computer and another over telephone lines. The signal can take on any value between the limits defined by the channel.

ASPECT RATIO — The ratio of the height of a video screen to its width, 3x4. This format is critical in devising graphics for video.

ASSEMBLE EDITING — A method of editing where audio and video segments are placed sequentially on another tape.

AUDIO — The sound portion of video.

AUDIO DUB — To record over the audio portion of a videotape without disturbing the video.

BACKLIGHTING — Light from behind a subject that adds depth to the subject's appearance.

BARN DOORS — Moveable flaps attached to a lighting instrument used to control the path of the light.

BETA — A popular 1/2" videocassette format.

BINARY — A number system which uses only the digits 0 and 1. Example: 1 = 1, 2 = 10, 3 = 11, 4 = 100, etc. . .

BIT — The smallest whole unit of information processed by computer, for example, 1 or 0.

BOOM — Either mike boom or camera boom. An elevating support for either mike or camera. Also means movement of entire camera; either up or down.

BRIGHTNESS — The comparative intensity of light which the eye can see as illuminating an object or screen.

BROADBAND — A transmission mode that has the capacity to relay more than one voice channel.

CABLE — The coated wires used to carry video and audio signals. Also refers to cable television.

CAMERA — In television, an electronic device that contains an optical system and a light sensitive tube that converts a visual image into electrical impulses.

CATHODE RAY TUBE (CRT) — The computer or television display screen.

CHANNEL — A "path" between two or more points for the electronic transmission of data.

CLOSED CIRCUIT (CCTV) — A system of transmitting television signals from a point of origin to one or many points specially equipped to receive the signals.

CLOSE-UP (CU) — A closer-than-normal picture of subject as compared to other shots in the sequence.

COAXIAL CABLE — A type of cable for data transmission often used by cable companies.

CONTRAST — The degree of difference between dark and light areas.

COVERSHOT — A shot that contains the entire action and all the players in a scene, often a longshot.

CREDITS — Graphic information at the end of a program indicating contributions of those who made the production happen.

CROSSFADE — A transition utilizing rapid fade to black and fade into next scene (symbolized X).

CUE CARD — A card placed off camera so that an instructor can read lines or cues.

CUT — Synonymous with stop when used during production. A cut between scenes occurs when the picture from one source is instantly replaced with a picture from another source.

DATA — Any information in the form of numbers, letters or symbols.

DC — Direct Current, the electrical power that comes from batteries or special adaptors of AC.

DEFINITION — Also called resolution. The fidelity with which the detail is reproduced by a television receiver.

DEPTH OF FIELD — The portion of an area that is in focus when viewed by a camera.

DIGITAL — A form of data transmission from one computer to another. The signal can take on only the values of 1 or 0, positive or negative.

DISSOLVE — A gradual transition from one picture to another in which the first gradually fades away while

the second is fading.

DISTANCE LEARNING — Instruction that originates at one site and is transmitted via an electronic medium to learners in distant sites. Instructional materials may also be transmitted.

DOLLY — Camera movement either toward or away from the subject.

DOWNLINK — A satellite receiving station or dish.

DUBBING — Duplicating videotape or inserting new audio into video.

EARTH STATION — Station and equipment used to receive or transmit signal via satellite.

ELECTRONIC BLACKBOARD — Type of equipment used in conjunction with computers and data transmission that is capable of relaying graphics, or "real time" hand drawn sketches from one site to others.

ELECTRONIC MAIL — Electronic system of writing, sending, receiving, and reading letters from one computer site to another via data transmission and telephone lines.

ELECTRONIC MEDIUM — A vehicle or means for the transmission of information that relies on electronics for relay capabilities.

EXTREME CLOSE-UP (ECU) — A much closer picture of a subject, as compared to other shots in the sequence. Of a person, usually a shot of the head or features of the face.

FEDERAL COMMUNICATIONS COMMISSION — A board of seven members appointed by the President who regulate all interstate and foreign communication networks that are based in the United States.

FEEDBACK — Squeals from a speaker when sound output is picked up by microphone listening to itself.

FIRST GENERATION — The original or master tape, not a copy.

FLAT — Referring to backdrop sections onto which scenery is painted or otherwise supported. In the theater it is usually made of canvas stretched over a wooden frame. For television it is made of hardboard, paper, plastic, styrofoam, or other materials, depending on the need for mobility.

FLOOR MANAGER — Also stage manager— Executes director's orders on the studio floor. Responsible for set-up of physical parts of the scene and directing talent while on-camera.

FOOTCANDLE — A unit measure of quantity of direct illumination falling on a surface, measured from the surface toward the source.

FORMAT — There are numerous incompatible videotape types and sizes, among them VHS, BETA, 3/4" and 8mm.

GEOSTATIONARY ORBIT — An orbit approximately 22,240 miles above the equator where satellites are placed so that their speed matches the speed or rotation of the earth, thus giving the satellite a stationary appearance.

HALO — Most commonly, a dark area surrounding an unusually bright object, caused by overloading of the camera tube. Reflection of studio lights from a piece of jewelry, for example, might cause this effect. With certain camera tube operating adjustments, a white area may surround dark objects.

HARDWARE — In video this refers to equipment.

HARD-WIRED — Two or more locations connected physically by an actual wire for communication and data transmission.

HEAD — Beginning of a program, similar to a title sequence.

HEAD ROOM — The space between a performer's head and the top of the camera picture.

IDIOT CARD — See Cue Card.

INSERT EDIT — A type of videotape editing where any combination of video and audio is placed within a tape without disturbing the material before or after it.

INTERACTIVE — A characteristic of some electronic medium which allows for the exchange of information between two users "real time" or for the exchange of data between a user and machine.

IRIS — Optically, the adjustable mask which limits the amount of light entering a lens. Its adjustments control both the amount of light used to excite TV electronics and also the depth of field.

ITFS — Instructional Television Fixed Service. A closed circuit broadcast system established by cable or microwave.

JACK — A plug-in receptacle device for making electrical connections.

KEY LIGHT — A light (usually a spotlight) which is used in addition to general light for accent.

LAN — Local Area Network. A privately owned communication network capable of transmitting voice data and video signals over the distance of a few miles via cable.

LEVEL — The average intensity of an average audio or video source.

LINE OF SITE — A signal path for the transmission of data from one antenna to another which is an optical straight line.

LIVE TALENT — Studio or on-the-spot instructors in contrast to the transmission of film or taped material.

LONG SHOT — A wider than normal picture of a subject as compared to other shots in the sequence, usually

the full length of the subject, sometimes some of the surroundings.

LPTV — Low powered television. Small low-powered television stations that usually serve isolated, rural areas.

MASTER — An original videotape, not a copy, used to make copies.

MICROWAVE — A transmission medium that allows for the relay of many audio, video, and data signals at once, either through line-of-sight transmission or satellite transmission.

MIXING — The combining of audio or video sources.

MIXER — Electronic instrument for combining several audio sources in one output.

MODEM — An interfacing device between a computer terminal and telephone that converts computer data into a form acceptable for telephone line transmission and vise versa.

MODULATION — Process whereby video and audio signals are combined into Radio Frequency or a TV channel for use with a television receiver.

MONITOR — A CRT for viewing the video portion of a television signal. (See RF).

MONTAGE — A series of related scenes, sequentially viewed to create a single impression.

NEGATIVE IMAGE — Refers to a picture signal having a polarity which is opposite to normal polarity and which results in a picture in which the white areas appear black and vice versa.

NETWORK — Another name for communications system which links one site or device to another for the transmission of information.

NOISE — The word "noise" is a carryover from audio practice. It refers to random spurts of electrical energy or interference and may produce a "salt and pepper" pattern over the picture. Heavy noise sometimes is called "snow."

OUTPUT — The part in a piece of video gear where electronic signals (audio or video) are available for distribution.

PAN — To move the camera lens left or right.

PICKUP TUBE — An electronic beam tube used in a television camera where an electron current or a charge-density image is formed from an optical image and scanned in a predetermined sequence to provide an electrical signal.

PICTURE TUBE — The television cathode-ray tube used to produce and display an image created by variations of intensity of an electronic beam which scans the coated surface on the tube interior.

PLAYBACK — After recording audio or video, the process of reproducing the signal.

PIXELLATION — A form of animation where objects are made to appear to be moving simply by changing their position relative to a fixed camera.

REAL TIME — A function of a network or communications system that allows for instant or live interaction between users.

RF — Radio Frequency. The modulated form of combined video and audio signals for receiving with a television set rather than a monitor.

SCENE — A connected sequence in a program.

SECOND GENERATION — A tape copy of the master tape.

SET — The basic background or area for production.

SIGNAL — Name for the form taken by data information when transmitted from one site to another.

SIGNAL TO NOISE RATIO (SN) — An evaluative measure of recording capability used in evaluating cameras and recorders, the lower the better.

SPECIAL EFFECTS — This refers to the combining or manipulation of video signals.

SPECIAL EFFECTS GENERATOR — An electronic instrument for combining video signals in a variety of ways.

SNOW — Heavy random noise.

STAND BY — Cue for performers and crew indicating that action is ready to begin.

STOP MOTION — Freezing a single frame of action into a still picture for as long as desired.

STORYBOARD — A graphic illustration of video and audio prepared in preproduction, using sketches to illustrate before shooting what a production will look like.

STUDIO CONTROL ROOM — The room or location where the monitoring and switching equipment is placed for the direction and control of a television program.

SWITCHING — Choosing a single picture from between two or more cameras.

SYNC — An abbreviation for the words "synchronization," "synchronizing." Applies to the synchronization signals or timing pulses which lock the electron beam of the picture monitors in step, both horizontally and vertically, with the electron beam of the pickup tube.

TALLY LIGHT — An indicator on a camera to alert performers to the "on-line" or active camera.

TECHNICAL DIRECTOR (TD) — Person in charge of electronic technicians in production, often responsible for changing picture sources on cue from director.

TELECOMMUNICATION — Communication between two or more people or groups via an electronic medium.

TELECONFERENCING - "Real time" communication and interaction between groups of people via an elec-

tronic medium.

TILT — A vertical camera lens movement either up or down.

ULTRA HIGH FREQUENCY (UHF) — The television channels 14-83.

UPLINK — A satellite signal transmitting station.

VERY HIGH FREQUENCY (VHF) — The television channels 2-13.

VHS — A popular 1/2" videocassette format. Means "video home system".

VIDEO — The picture portion of a television signal.

VIDEO IN — Input jack that delivers video signal to a particular piece of equipment.

VIDEO OUT — Output jack that carries a video signal from a particular piece of equipment.

VIEWFINDER — A camera part that shows the operator the camera's field of view.

VOICE OVER — A spoken message delivered off-camera as a narrative to television scenes.

VTR — Videotape recorder.

VIDEO ADD — A type of video insert possible with some VCR's. A new video signal is added into an already recorded videocassette.

VIDEO INSERT — A type of video editing where the video portion of a tape is replaced by new video without disturbing the rest of the tape.

WHITE BALANCE — A system for setting color balance in a camera.

ZOOM LENS — A multipurpose lens, sometimes electrically powered, which enables the operator to "zoom" from normal to telephoto and intermediate positions at the touch of a button.